THE BYZANTINE STATE FINANCES IN THE EIGHTH AND NINTH CENTURIES

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TO DR. JAMES R. NAIDEN
WHO FIRST TAUGHT ME TO READ GREEK AND LATIN
AND TO USE THEM IN RESEARCH

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PREFACE

I first became aware of the problem treated in this monograph during a casual discussion at Dumbarton Oaks in May 1977, when Robert Lopez expressed exasperation and even incredulity that all Byzantine state archives had disappeared. In my subsequent work, I have come to realize that the loss of those archives (which at least for the eighth and ninth centuries does seem to be total) is a major problem, and particularly damaging because it encourages the attitude that no specific statements about the workings of the Byzantine state are possible. I first planned this study as a fairly brief article arguing that even the scanty evidence we possess is enough to confirm in a general way the total proposed long ago by Ernst Stein for the budget of the ninth-century Empire. As I worked, however, I gradually found that the evidence was not as scanty as I had supposed, and was probably absent for some categories of revenue and expenditure only because those categories had never existed or were insignificant. The result is this short book.

It is still a limited study. If I had not confined myself here to the task of reconstructing the state budget, the project would have turned into a general history of Byzantium that was distorted by an exaggerated emphasis on state finance. (I am now at work on a separate general history of Byzantium from 780 to 842 that I hope to keep free from that distortion.) By the same token, this monograph omits references to many sources and secondary works that give important information about such topics as the Byzantine army and economy but proved not to be directly useful for estimating any budgetary items.

I have, however, tried not to overlook any relevant study or approach, and in that effort I have consulted a variety of scholars. At one time or another I have presented material from this project to the Byzantine Studies Conference, the Oxford Byzantine Society, the Stanford Social Science History Workshop, and the Stanford Classics Department, and received helpful comments from each audience. I have also benefited from the advice of a number of scholars who kindly agreed to read the typescript in one form or another: Arther Ferrill, Michael Hendy, Michael Jameson, Walter Kaegi, Patricia Karlin-Hayter, Cyril Mango, Pierre Noyes, Nicolas Oikonomidès, Ihor Ševčenko, and Carl Solberg. Most of the research and writing was done at Munich and Oxford with the support of a Research Fellowship from the Humboldt Foundation; the writing was completed at Stanford on a fellowship from the Mellon Foundation. I am pleased to thank all these groups and scholars, especially Professor Ferrill, whose encouragement was particularly important, and Professor Oikonomidès, whose criticisms were particularly useful and whose invaluable book was the prerequisite for such a study as this one.

I emphasize here that, except in a few cases in which the sources give information that probably derives from the lost archives, most figures I propose in this study are estimates with large margins for error. Such figures should not be pressed too far; but neither should they be dismissed simply because they are rough estimates. The estimate that Byzantium had a population of around ten million in 842 is probably about as accurate as the widely quoted estimate that China has a population of around a billion in 1981. Both numbers are guesses based on imperfect census materials well removed from the dates in question; either could easily be wrong by as much as 20%. On the other hand, neither is at all likely to be wrong by as much as 50%, and no sensible Sinologist would say that the population of contemporary China cannot be usefully estimated. The Byzantinist cannot afford to be more fastidious.

Seattle
September, 1981

LIST OF ABBREVIATIONS

Acta Martyr. Amor.	*Acts of the 42 Martyrs of Amorium,* ed. V. Vasilievskij and P. Nikitin, *ZIAN* VII. 2 (1905), 1-90.
Ahrweiler (1960)	H. Glykatzi-Ahrweiler, "Recherches sur l'administration de l'empire byzantin aux IX^{e}-XI^{e} siècles," *BCH* 84 (1960), 1-109.
Ahrweiler (1966)	_____, *Byzance et la mer* (Paris, 1966)
Andréadès (1922)	A. Andréadès, *Le Montant du budget de l' empire byzantin* (Paris, 1922) (first published as an article in *Revue des Études Grecques* 34 [1921], 2–56; page references here to the monograph)
Andréadès (1948)	_____, "Public Finances: Currency, Public Expenditure, Budget, Public Revenue," in N. H. Baynes and H. Moss, eds., *Byzantium: An Introduction to East Roman Civilization* (Oxford, 1948), 71–85.
Anon. Vári	*Incerti Scriptoris Saeculi IX Liber de Re Militari,* ed. R. Vári (Leipzig, 1901)
Antoniadis-Bibicou (1963)	H. Antoniadis-Bibicou, *Recherches sur les douanes à Byzance: L' "octava," le*

	"kommerkion" et les commerciares (Paris, 1963)
ASB	*Acta Sanctorum Bollandiana* (1643-)
Baron (1957)	S. W. Baron, *A Social and Religious History of the Jews*, III (2nd ed., New York, 1957)
Barraclough (1976)	G. Barraclough, *The Crucible of Europe: The Ninth and Tenth Centuries in European History* (London, 1976)
BCH	*Bulletin de Correspondance hellénique*
Benjamin	Benjamin of Tudela, *Itinerary*, ed. and trans. M. N. Adler (London, 1907) (page references to the translation)
Bréhier (1949)	L. Bréhier, *Les institutions de l' empire byzantin* (Paris, 1949)
Brooks (1900–01)	E. W. Brooks, "Byzantines and Arabs in the Time of the Early Abbasids," *EHR* 15 (1900), 728–47 and *EHR* 16 (1901), 84–92
Brooks (1901)	———, "Arabic Lists of the Byzantine Themes," *Journal of Hellenic Studies* 21 (1901), 67–77
Bury (1911)	J. B. Bury, *The Imperial Administrative System in the Ninth Century* (London, 1911)
Bury (1912)	———, *A History of the Eastern Roman Empire from the Fall of Irene to the Accession of Basil I* (London, 1912)
BZ	*Byzantinische Zeitschrift*
Cameron (1976)	Alan Cameron, *Circus Factions: Blues and Greens at Rome and Byzantium* (Oxford, 1976)
Cedrenus	George Cedrenus, ed. I. Bekker, 2 vols. (Bonn, 1838–39)
Charanis (1946)	P. Charanis, "Nicephorus I, the Savior of Greece from the Slavs," *Byzantina-metabyzantina* 1 (1948), 75–92
Charanis (1966)	———, "Observations on the Demography of the Byzantine Empire," *Thirteenth International Congress of By-*

	zantine Studies: Main Papers 14 (Oxford, 1966), 1–19
Charanis (1970)	———, "Kouver, the Chronology of his Activities and their Ethnic Effects on the Regions around Thessalonica," *Balkan Studies* 11 (1970), 229–47
Cooper (1977)	A. B. Cooper, "The Family Farm in Greece," *Classical Journal* 73 (1977), 162–75
Cormack (1977)	R. Cormack, "The Arts during the Age of Iconoclasm," in A. Bryer and J. Herrin, eds., *Iconoclasm* (Birmingham, 1977), 35–44
De Adm. Imp.	Constantine VII Porphyrogenitus, *De Administrando Imperio*, ed. Gy. Moravcsik and trans. R.J.H. Jenkins (Washington, 1967)
De Cer.	———, *De Ceremoniis*, ed. J. Reiske, I (Bonn, 1829)
De Off. Reg.	Anonymous, *De Officiis Regiis*, ed. B. Wassiliewsky and V. Jernstedt (St. Petersburg, 1896)
De Them.	A. Pertusi, *Costantino Porfirogenito, De Thematibus: Introduzione, testo critico, commento* (Vatican City, 1952)
Dölger (1924–32)	F. Dölger, *Regesten der Kaiserurkunden des Oströmischen Reiches von 565–1453*, parts 1–3 (Munich-Berlin, 1924–32)
Dölger (1927)	———, *Beiträge zur Geschichte der byzantinischen Finanzverwaltung* (Leipzig, 1927; reprint with addenda and corrigenda, Hildesheim, 1960)
Dölger (1929–30)	———, "Das 'Αερικόν," *BZ* 30 (1929–30), 450–57
DOP	*Dumbarton Oaks Papers*
EHR	*English Historical Review*
Foss (1975)	C. Foss, "The Persians in Asia Minor and the End of Antiquity," *EHR* 90 (1975), 721–47

Foss (1979)	———, *Ephesus after Antiquity: A Late Roman, Byzantine and Turkish City* (Cambridge, 1979)
Fourmy-Leroy (1934)	M.-H Fourmy and M. Leroy, "La vie de S. Philarète," *Byzantion* 9 (1934), 85–170
Genesius	Joseph Genesius, ed. A. Lesmüller-Werner and J. Thurn (Berlin-New York, 1978)
Grabar (1957)	A. Grabar, *L'Iconoclasme byzantin: Dossier archéologique* (Paris, 1957)
GRBS	*Greek, Roman and Byzantine Studies*
Grégoire (1966)	H. Grégoire, "The Amorians and Macedonians, 842–1025," *The Cambridge Medieval History* IV.1 (2nd ed., Cambridge, 1966), 105–92
Gregoras	Nicephorus Gregoras, ed. L. Schopen and I. Bekker, 3 vols. (1829–55)
Grierson (1968–73)	P. Grierson, *Catalogue of the Byzantine Coins in the Dumbarton Oaks Collection and in the Whittemore Collection*, II–III (Washington, 1968–73)
Güriz (1974)	A. Güriz, "Land Ownership in Rural Settlements," in Peter Benedict et al., eds., *Turkey: Geographic and Social Perspectives* (Leyden, 1974), 71–91
Haldon (1977)	J. Haldon, *Byzantine Military Administration: The Elite Corps, the Imperial Opsikion and the Tagmata* (diss. Birmingham, 1977; unpublished)
Haldon (1978)	———, "Kudāma ibn *Dja'* far and the Garrison of Constantinople," *Byzantion* 48 (1978), 78–90
Haldon (1979)	———, *Recruitment and Conscription in the Byzantine Army* c. *550–950: A Study on the Origins of the Stratiotika Ktemata* (Vienna, 1979)
Hitti (1968)	P. K. Hitti, *A History of the Arabs* (9th ed., New York, 1968)

Howard-Johnston (1971)	J. D. Howard-Johnston, *Studies in the Organization of the Byzantine Army in the Tenth and Eleventh Centuries* (diss. Oxford, 1971; unpublished)
Huxley (1977)	G. Huxley, "On the *Vita* of St. John of Gotthia," *GRBS* 19 (1977), 161–69
Ibn Al-F.	Ibn Al-Faqīh, trans. in Brooks (1901), 72–77
Ibn H.	Ibn Ḥawqal, trans. J. Kramers and G. Wiet (Beirut-Paris, 1964)
Ibn Kh.	Ibn Khurdādhbih, ed. and trans. M. J. de Goeje, *Bibliotheca Geographorum Arabicorum,* VI (Leyden, 1889), 1–144 (page references to translation)
Janin (1964)	R. Janin, *Constantinople byzantine* (2nd ed., Paris, 1964)
Janin (1969)	———, *La géographie ecclésiastique de l'empire byzantin: La siège de Constantinople et le patriarcat oecuménique: Les églises et les monastères* (2nd ed., Paris, 1969)
Jenkins (1967)	R.J.H. Jenkins, "Social Life in the Byzantine Empire," *The Cambridge Medieval History* IV.2 (2nd ed., Cambridge, 1967), 78–103
Jones (1964)	A.H.M. Jones, *The Later Roman Empire: A Social, Economic, and Administrative Survey*, 2 vols. (Norman, Oklahoma, 1964)
Kaegi (1967)	W. E. Kaegi, "Some Reconsiderations on the Themes (Seventh-Ninth Centuries)," *Jahrbuch der Österreichischen Byzantinischen Gesellschaft* 16 (1967), 39–53
Kazhdan (1954)	A. Kazhdan, "Vizantiiskie goroda v VII-IX vv.," *Sovetskaja Arkheologija* 21 (1954), 164–88
Kazhdan (1960)	———, *Derevnija i gorod v Vizantii (ix-xvv.)* (Moscow, 1960)
Kennedy (1981)	H. Kennedy, *The Early Abbasid Caliphate: A Political History* (London, 1981)

Kondov (1974)	N. Kondov, "Uber den wahrscheinlichen Weizenertrag auf der Balkaninsel in Mittelalter," *Études Balkaniques* 10 (1974), 97–109
Lampe (1961)	G.W.H. Lampe, ed., *A Patristic Greek Lexicon* (Oxford, 1961)
Laurent (1952)	V. Laurent, *Documents de sigillographie byzantine: La collection C. Orghidan* (Paris, 1952)
Lemerle (1958)	P. Lemerle, "Esquisse pour une histoire agraire de Byzance: Les sources et les problèmes," I, *Revue Historique* 219 (1958), 32–74, II, in *ibid.*, 254–84, and III, in *ibid.*, 220 (1958), 43–94.
Lemerle (1963)	———, "La chronique improprement dite de Monemvasie: Le contexte historique et légendaire," *REB* 21 (1963), 5–49
Lemerle (1967)	———, "'Roga' et rente d'Etat aux X^{e}-XI^{e} siècles," *REB* 25 (1967), 77–100
Lemerle (1977)	———, *Cinq études sur le XI^{e} siècle byzantin* (Paris, 1977)
Leo, *Naumachica*	Leo VI, *Naumachica*, ed. A. Dain (Paris, 1943)
Leo, *Tactica*	———, *Tactica*, in *PG* 107, 669–1120
Lilie (1977)	R.-J. Lilie, "'Thrakien' und 'Thrakesion,'" *Jahrbuch der Österreichischen Byzantinistik* 26 (1977), 7–47
Liudprand	Liudprand of Cremona, *Antapodosis*, ed. J. Becker (Hannover-Leipzig, 1915)
Lombard (1974)	Maurice Lombard, *Les métaux dans l'Ancien Monde du V^{e} au XI^{e} siècle* (Paris, 1974)
Lopez (1951)	R. Lopez, "The Dollar of the Middle Ages," *Journal of Economic History* 11 (1951), 209–34
Lydus	John Lydus, *De Magistratibus*, ed. R. Wünsch (Leipzig, 1903)
McEvedy-Jones (1978)	C. McEvedy and R. Jones, *Atlas of World*

	Population History (Harmondsworth, England, 1978)
Mango (1958)	C. Mango, *The Homilies of Photius, Patriarch of Constantinople* (Cambridge, Mass., 1958)
Mango (1965)	_____, "The Heir of Rome," in D. Talbot-Rice, ed., *The Dark Ages* (London, 1965), 83–112.
Michael Syr.	Michael Syrus, ed. and trans. J. Chabot, III (Paris, 1905–06) (page references to translation)
Miller (1978)	T. Miller, "The Basilika and the Demosia: The Financial Offices of the Late Byzantine Empire," *REB* 36 (1978), 171–91.
Mirac. S. Dem.	*Miracles of St. Demetrius,* ed. P. Lemerle, *Les plus anciens recueils des miracles de Saint Démétrius* I (Paris, 1979)
Migel (1967)	A. Miquel, *La géographie humaine du monde musulman jusqu'au milieu du 11^e siècle* (Paris, 1967)
Narr. de S. Soph.	Anonymous, *Account of the Construction of St. Sophia*, ed. Th. Preger, in *Scriptores Originum Constantinopolitanarum* I (Leipzig, 1901), 74–108
Nesbitt (1977)	J. Nesbitt, "Double Names on Early Byzantine Lead Seals," *DOP* 31 (1977), 109–21
Nicephorus, *Apol.*	Nicephorus, *Apologeticus pro Sacris Imagnibus,* in *PG* 100, 533–833
Nicephorus, *Brev.*	_____, *Breviarium,* ed. C. de Boor, in *Nicephori Opuscula Historica* (Leipzig, 1880), 2–77
Nicephorus II	Nicephorus II, *Praecepta Militaria,* ed. Ju. Kulakovskij, *ZIAN* VIII. 9 (1908)
Oikonomidès (1972)	N. Oikonomidès, *Les listes de préséance byzantines des IX^e et X^e siècles (Paris, 1972)*

Ostrogorsky (1927)	*G. Ostrogorsky, Die ländliche Steuergemeinde des byzantinischen Reiches im X. Jahrhundert* (Stuttgart, 1927; reprint with afterword, Amsterdam, 1969)
Ostrogorsky (1931)	_____, "Das Steuersystem im byzantinischen Altertum und Mittelalter," *Byzantion* 6 (1931), 229–40
Ostrogorsky (1932)	_____, "Löhne und Preise in Byzanz," *BZ* 32 (1932), 293–333
Ostrogorsky (1959)	_____, "Byzantine Cities in the Early Middle Ages," *DOP* 13 (1959), 45–66
Ostrogorsky (1966)	_____, "Agrarian Conditions in the Byzantine Empire in the Middle Ages," in *The Cambridge Economic History of Europe* I (2nd ed., Cambridge, 1966), 205–34
Ostrogorsky (1969)	_____, *History of the Byzantine State* (rev. ed., New Brunswick, N. J., 1969)
Pachymeres	George Pachymeres, ed. I. Bekker, 2 vols. (Bonn, 1835)
Paparrhegopoulos (1932)	K. Paparrhegopoulos, Ἱστορία τοῦ Ἑλληνικοῦ ἔπους IV (6th ed., Athens, 1932)
PG	*Patrologiae Cursus Completus, Series Graeca*, ed. J.-P. Migne
Philotheus	Philotheus, ed. and trans. in Oikonomidès (1972), 80–235
Pounds (1974)	N.J.G. Pounds, *An Economic History of Medieval Europe* (New York, 1974)
Preger (1901)	Th. Preger, "Die Erzählung vom Bau der Hagia Sophia," *BZ* 10 (1901), 455–76
Procopius, *Hist. Arc.*	Procopius of Caesarea, *Historia Arcana*, ed. J. Haury and P. Wirth (Leipzig, 1963)
Psellus, *Chron.*	Michael Psellus, *Chronographia*, ed. E. Renaud, 2 vols. (Paris, 1926–28)
Ps.-Symeon	Pseudo-Symeon, ed. I. Bekker as "Sy-

	meon Magister" with Theoph. Cont. (Bonn, 1838), 601–760
Qudāmah	Qudāmah ibn Ja'far, ed. and trans. M. J. de Goeje, *Bibliotheca Geographorum Arabicorum* VI (Leyden, 1889), 144–208 (page references to translation)
REB	*Revue des Etudes Byzantines*
Runciman (1930)	S. Runciman, *A History of the First Bulgarian Empire* (London, 1930)
Russell (1948)	J. C. Russell, *British Medieval Population* (Albuquerque, 1948)
Russell (1958)	_____, *Late Ancient and Medieval Population* (*Transactions of the American Philosophical Society* 48.3; Philadelphia, 1958)
Russell (1961)	_____, "Late Medieval Balkan and Asia Minor Population," *Journal of the Economic and Social History of the Orient* 4 (1961), 265–74
Schilbach (1970)	E. Schilbach, *Byzantinische Metrologie* (Munich, 1970)
Script. Incert.	*Scriptor Incertus de Leone Armenio,* ed. I. Bekker with Leo Grammaticus (Bonn, 1842), 335–62
Scylitzes	John Scylitzes, ed. J. Thurn (Berlin-New York, 1973)
Sevcenko (1965)	I. Ševčenko, "Inscription Commemorating Sisinnios, 'Curator' of Tzurulon (A.D. 813)," *Byzantion* 35 (1965), 564–74
Sharf (1971)	A. Sharf, *Byzantine Jewry from Justinian to the Fourth Crusade* (London, 1971)
Speck (1978)	P. Speck, *Kaiser Konstantin VI,* 2 vols. (Munich, 1978)
Stein (1919)	E. Stein, *Studien zur Geschichte des byzantinischen Reiches* (Stuttgart, 1919)
Stein (1924)	_____, review of Andréadès (1923), *BZ* 24 (1924), 337–87
Svoronos (1956)	N. Svoronos, "Sur quelques formes de la vie rurale à Byzance: petite

	et grande exploitation," *Annales* 11 (1956), 325–35
Svoronos (1959)	———, "Recherches sur le cadastre byzantin et la fiscalité aux XI^e^ et XII^e^ siècles: Le cadastre de Thèbes," *BCH* 83 (1959), 1–166
Svoronos (1976)	———, "Remarques sur les structures économiques de l'Empire byzantin au XI^e^ siècle," *Travaux et Mémoires 6 (1976), 49–67*
Sym. Log.	Symeon the Logothete, ed. I. Bekker as part of "Georgius Monachus" with Theoph. Cont. (Bonn, 1838), 761–924
Tact. Ben.	*Tacticon Beneševič*, ed. and trans. in Oikonomidès (1972), 242–53
Tact. Usp.	*Tacticon Uspensky*, ed. and trans. in Oikonomidès (1972), 46–63
Teall (1959)	J. Teall, "The Grain Supply of the Byzantine Empire, 330–1025," *DOP* 13 (1959), 87–139
Theodore, *Epistolae*	Theodore of Studium, *Letters*, in *PG* 99, 904–1669
Theophanes	Theophanes, ed. C. de Boor, I (Leipzig, 1883)
Theoph. Cont.	Theophanes Continuatus, ed. I. Bekker (Bonn, 1838)
Treadgold (1979a)	W. Treadgold, "The Chronological Accuracy of the *Chronicle* of Symeon the Logothete for the Years 813–845," *DOP* 33 (1979), 157–97
Treadgold (1979b)	———, "The Revival of Byzantine Learning and the Revival of the Byzantine State," *American Historical Review* 84 (1979), 1245–66
Treadgold (1980)	———, "Notes on the Numbers and Organization of the Ninth-Century Byzantine Army," *GRBS* 21 (1980), 269–88
Treadgold (forthcoming)	———, "The Military Lands and the Imperial Estates in the Middle Byzan-

	tine Empire," *Harvard Ukrainian Studies* 7 (1983)
Vasiliev (1935–68)	A. A. Vasiliev et al., *Byzance et les Arabes* I-II (Brussels, 1935–68)
Vita Euthym. Jun.	*Life of St. Euthymius the Younger,* ed. L. Petit in *Revue de l'Orient Chrétien* 8 (1903), 168–205
Vita Ignatii	Nicetas the Paphlagonian, *Vita Ignatii,* in *PG* 105, 487–574
Vita Joannicii	*Life of St. Joannicius,* in *ASB*, Nov. II, 332–83
Vita Joh. Gotth.	*Life of St. John of Gotthia,* in *ASB*, Jun. VII, 167–72
Vita Lucae	*Life of St. Luke the Stylite*, ed. H. Delehaye, *Les Saints Stylites* (Brussels-Paris, 1923), 195–237
Vita Philareti	*Life of St. Philaretus the Almsgiver*, ed. and trans. Fourmy-Leroy (1934), 111–70
Vita Theoph. Conf.	*Life of Theophanes Confessor*, ed. K. Krumbacher in *Sitzungsberichte der philos.-philol. und der hist. Classe der k. b. Akademie der Wiss. zu München* 1897.1, 389–99
Vryonis (1962)	Sp. Vryonis, "The Question of the Byzantine Mines," *Speculum* 37 (1962), 1–17
Vryonis (1963)	_____, "An Attic Hoard of Byzantine Gold Coins (668–741) from the Thomas Whittemore Collection and the Numismatic Evidence for the Urban History of Byzantium," *Zbornik Radova Vizantološkog Instituta* 8 (1963), 291–300
Vryonis (1967)	_____, *Byzantium and Europe* (Norwich, England, 1967)
Zacos-Veglery	G. Zacos and A. Veglery, eds., *Byzantine Lead Seals*, I (Basel, 1972)
Zepos, *Jus*	I. and P. Zepos, eds., *Jus Graeco-romanum*, 8 vols. (Athens, 1931)

ZIAN	*Zapiski Imperatorskoj Akademii Nauk po Istoriko-filologičeskomu Otděleniju* (St. Petersburg)

1

THE PROBLEM

Most contemporary scholarly controversy over the condition of the Byzantine Empire between the seventh century and the ninth is a matter of scale. Scholars generally agree that after the early seventh century the Empire lost about two-thirds of its territory, and that its remaining cities, trade, educated class, population, and resources also contracted. On the other hand, no one denies that in this period the Empire still had some population centers, trade, and educated class and considerable population and resources, and that in the ninth century all of these began to expand. The dispute is over how much damage the Empire had suffered. Some see the Empire as severely impoverished and devastated during this time, with its provincial cities reduced to mere towns, villages, forts, or even ruins, and its overall trade, communications, and security drastically disrupted.[1] Others find the Empire still relatively prosperous and powerful, with urban life maintained in Asia Minor and even to some extent in Greece and Thrace, and important trade and a sizable money economy persisting.[2] The controversy may be summed up as a disagreement over the size of the Byzantine economy.

Nevertheless, the controversy has seldom been over specific numbers. Relative sizes of coin finds have been discussed without conclusive results; otherwise only isolated figures have been used as examples. Thus Speros Vyronis has illustrated his case for a relatively large economy by estimating the ninth-century military payroll in Asia Minor at around a million nomismata; and Cyril Mango has illustrated his case for a relatively small economy by estimating the popula-

tion of Amorium in 838, when it was the chief city of Asia Minor, at 20,000 or less.[3] Yet it is not obvious that these two figures are incompatible with each other, or which view they would support if they were both correct. Like the numbers of coin finds, they are numbers out of context, and can suggest to different observers very different pictures of the situation as a whole.

What would probably be the ideal measure, an estimate for the Byzantine gross annual product at various times, is out of reach today. Records of this are not only lacking now but never existed, and any monetary value assigned to it would be an abstraction, given that most of the Empire's production was consumed or bartered without ever being turned into cash. The most useful estimate that may be attainable is for the annual cash revenue of the Byzantine government. Because this figure was by definition entirely in cash, it can be computed without evaluating non-monetary resources. In fact, it was surely recorded as such in the Byzantine archives; as we shall see, our sources preserve totals for the Byzantine revenue in the fourteenth century and for the revenue of the Abbasid Caliphate in the eighth and ninth centuries. Especially if such a figure were divided into the revenue from taxes on agriculture and that from taxes on trade and industry, it would be a fairly good index of the power and wealth of the Byzantine state—though not necessarily of the prosperity of its subjects. It is certainly worth recovering, if it can be recovered.

Sixty years or more ago, two eminent Byzantinists made estimates of the cash revenue of the Byzantine state in the ninth century. In 1912, J. B. Bury, following K. Paparrhegopoulos, estimated the annual revenue of the Emperor Theophilus (829–42) at 45 to 50 million nomismata.[4] In 1919, Ernst Stein estimated the annual revenue under the Amorian Dynasty (820–67) at no more than six million nomismata—one-eighth as much, or less.[5] Three years later, Andreas Andréadès entered the controversy, making no estimate of his own but arguing that Bury's estimate was much too high and Stein's estimate much too low.[6] Stein responded with a review in which he defended his estimate and implied that Andréadès had misunderstood his arguments.[7] In the late thirties Andréadès had the last word, repeating that though no exact figure could be given the estimates of Bury and Stein were "equally erroneous."[8] Today, more than forty years later, the question seems to have progressed no further in print.[9]

Some of the implications of these estimates can be seen by means of comparisons with our figures for the revenue of the contemporary

Caliphate and for the later Byzantine Empire. First, the revenue of the Caliph Hārūn Al-Rashīd (786–809) has been recorded in a tax-list, and was equivalent to some 35 million nomismata. Though the figures that survive for the revenue of Theophilus' contemporary Al-Ma'mūn (813–33) are not quite complete, a comparison with Hārūn's tax-list shows that Ma'mūn's revenue must have been equivalent to about 22 million nomismata.[10]

Thus, according to Bury, the Empire had at least twice the cash revenue of the Caliphate, so that its failure to halt the Arab raids of Asia Minor and its defeats in the battles of 838 and 843/4 seem a remarkably poor defensive performance. On the other hand, according to Stein, the Empire had at best about a quarter as much revenue as the Caliphate, so that its continuing to survive the Arab onslaught at all seems a considerable feat. Though of course the military balance between Empire and Caliphate depended on other factors besides wealth, our evaluation of those other factors would be utterly different depending upon which estimate we adopted.

Second, we know that in the year 1321 the Emperor Andronicus II, by means of fiscal heroics, managed to raise the annual revenue of his imperfectly restored Byzantine Empire to the equivalent of half a million nomismata of Theophilus' time.[11] The condition of Andronicus' Empire is not a subject of serious dispute: the Empire was exhausted, with its territory not only ravaged and impoverished but gradually slipping from central control.[12] Any comparison of revenues should take into account that Andronicus' Empire was a barely a third the size of that of Theophilus. Still, if Bury is right that Theophilus was able to raise revenue at thirty times Andronicus' maximum rate or more, Theophilus' Empire would have to be considered a wealthy one. Stein's estimate that Theophilus raised revenue at four times Andronicus' rate or less, especially if it were much less, would leave open the possibility that Theophilus' territory too had been rather badly ravaged and impoverished.

Another way of looking at these estimates is to compare them with estimates of the cost of living in Byzantium, which are based on a considerable body of evidence. George Ostrogorsky put the cost of basic sustenance for a family in early Byzantine times at some seventeen nomismata a year, and Romilly Jenkins made a similar estimate for the middle Byzantine period.[13] Accordingly, Bury's estimate for the state revenue is a sum that could have supported about three million families, which may well have been more than the whole population

of the Empire at the time.[14] If this is correct, or even if the population were twice as numerous, the Empire would have to be considered rich—and probably severely overtaxed as well. But Stein's estimated revenue would have been enough to support no more than around 350,000 families—a substantial number at the maximum, but certainly far less than the Empire's population. Such a case might be characteristic of a state with extortionary taxation but no great wealth among its subjects.

The unbridgeable gap between the estimates of Bury and Stein, the minimum of one being seven and a half times the maximum of the other, may seem an indication that the source material is hopelessly inadequate to permit any meaningful estimate of the ninth-century revenue to be made. But the gap is at least as much a sign of the underdevelopment of the Byzantine field. Though no doubt Andréadès was right that the Byzantine revenue cannot be estimated with complete precision and certainty, our sources are hardly so scanty and contradictory as to lend equal support to the positions of Bury and Stein, and to the rather too easy position of Andréadès that they are equally wrong.

In fact, the published arguments of these three authorities rely considerably more on subjective judgments than on thorough examination of the source material. Bury's estimate is derived from an estimate of Paparrhegopoulos that rests mostly on a single late figure of highly debatable significance.[15] Stein's estimate is mainly based on data from the sixth century, supplemented by his guess at the proportion of the revenue of the ninth-century Empire to that of the Caliphate. Andréadès, after considering arguments that appeared to him to support Paparrhegopoulos against Stein, dismissed Paparrhegopoulos' estimate with the simple assertion that for a pre-modern state such a large sum was preposterous.[16] None of these scholars made any systematic attempt to reconstruct an itemized budget for the middle Byzantine period to explain and check their conclusions, though Stein suggested a rough outline of the sixth-century budget.[17]

Nevertheless, materials do exist for a much more thorough study than has yet been made of the Byzantine state budget in the eighth and ninth centuries. A nearly complete account of the numbers, organization, and pay scale of the Byzantine army about 842 survives in the works of three Arab geographers. They, combined with certain Byzantine sources, provide material for reconstructing the whole military payroll and a substantial part of that of the civil service. Certain other

evidence on state expenditure survives, including some official paperwork for three tenth-century military expeditions and what seems to be an inventory of the decorations of St. Sophia and their value. As for revenues, only a few fragments of cadastral documents survive, but the tax rates are fairly completely recorded in several places. Though modern estimates that have been made of the Empire's population and of the average size of Byzantine farms are speculative at best, they are at least worth checking by considering their consequences for the budget. Like the direct tax rates, the rates of the Empire's trade and market duties are known, and a few figures survive for the amounts of these duties collected in certain places. Further, literary sources provide apparently reliable figures for the surpluses in the treasury at several different dates. Only a fraction of this evidence has been exploited so far.

Obviously, the figures in these sources cannot be accepted without question; they may be mistakes, groundless guesses, or even textual corruptions in our manuscripts. But many must be right, or very nearly so. The Empire could not have functioned if its muster-rolls, payrolls, cadasters, accounts, and receipts had been utterly wrong. Sometimes they were correct by definition, because even padded payrolls were paid in full, and whatever taxes were embezzled on the spot were not listed as collected. The official figures for various items were known to many members of the bureaucracy, who were by and large the class who wrote and read history. Even when they did not have direct access to exact figures, bureaucrats were in a position to make reasonably close estimates, and would not be deceived by figures that were too far from the mark.

Among the more or less correct figures, the textual corruptions, wild guesses, and outrageous distortions are usually easy to detect. The best test of any number in ancient or medieval sources is its compatibility with other numbers in independent sources. Therefore, every figure or estimate should be checked against every other as far as possible, and accepted only if its logical consequences in other areas are plausible. Admittedly, most estimates will still have to be approximate ones, but making an estimate with a margin for error of even 50% is better than being content with the difference of more than 700% between the estimates of Bury and Stein.

The aim of the present study is to reconstruct the broad outlines of the financial records of the middle Byzantine Empire, and consequently to estimate the annual cash budget of the Byzantine govern-

ment. The period studied closely is approximately that from the accession of Leo III in 717 to the accession of Leo VI in 886. No attempt has been made to estimate the budget in the seventh century, an extremely unsettled period for which evidence on state finance is exiguous. For the tenth century the sources are if anything more abundant than before; but they do not translate as easily into overall numerical estimates, since they apparently include neither figures for the total sum in the treasury like those for 842, 856, or 867, nor a figure for the total military payroll like that for *ca.* 867, nor a statistical survey of the army like that of Al-Jarmī for *ca.* 842, nor a description of the bureaucracy nearly as detailed as that of Philotheus for 899. For the present purpose, the best course seems to be to make use of whatever evidence of the tenth century and later bears on the situation in the ninth century, to discuss changes in the army and bureaucracy from Leo VI's reign on as far as these affect that evidence, but not to attempt any systematic account of the finances in the later period. As it is, the period chosen has the advantage of beginning at a time when the revival of the middle Byzantine Empire had pretty plainly not yet started, and of ending at a time when that revival was obviously well under way.

For conveninence, all estimates and most figures quoted are expressed in nomismata, the nomisma being the principal gold coin at the time. Sums recorded in the sources in other monetary units are converted into nomismata at the official rates, and the debased nomismata of the eleventh century and later are converted into old nomismata according to their gold content.[18] In order to avoid the problem of converting non-monetary values into monetary ones, the main estimates here exclude all revenues and expenditures that were outside the money economy, such as food and mounts that were levied as taxes in kind and distributed to the army, billeting of troops, corvée labor, and grants of land to soldiers and naval oarsmen. Though these revenues and expenditures were important, as we shall see, they had no place in the cash budget and ought not to be confused with it.

Because of the uneven distribution of the evidence and the fact that the state budget could vary substantially from year to year and over longer periods of time, the main body of this study has two parts. The first is a full discussion of the finances during a base period, the regency of Theodora from 842 to 856. Within this period each major budgetary item is discussed in turn. In the second part this examina-

tion is taken as a basis for a general outline of the state finances from 717 to 886, with each budgetary category again considered individually and illustrated by estimates for the reign of the Empress Irene (780–802). Most of the quantitative material is summarized in tables that appear at the end of the study. A comparison between the estimates for Irene's reign and those for Theodora's regency should provide a rough measure of the progress of the Empire's economic revival during what has usually been considered its first great spurt of growth.[19]

2

THE FINANCES UNDER THEODORA (842–56)

The period chosen here as a base, the regency of Theodora for Michael III, has several advantages for the present purpose. First, it is approximately the period of Bury's estimate, which applied to the reign of Theodora's husband Theophilus (829–42), and of Stein's, which applied to the whole Amorian Dynasty (820–67). In addition, Theodora's regency was a time of relative stability. The fiscal reforms of Nicephorus I (802–11) had long since taken effect, and there were no catastrophes on the scale of the Bulgarian invasion of 813, the civil war of 821–23, or the Arab sack of Ancyra and Amorium in 838. Further, the regency was a time of relatively consistent and moderate policy, largely set by the Logothete of the Drome Theoctistus; there were no extraordinary expenditures comparable to the buildings of Theophilus or the donatives of Michael III.[20] Finally, a comparatively large amount of evidence survives for these years and for the preceding reign of Theophilus and the subsequent rule of Michael. I shall begin with the surplus, for which the evidence is best, then consider the expenditures, and finally consider the revenues, for which the evidence is worst.

The Surplus

The most reliable figures that we possess for Byzantine state finance are those for reserves of money in the treasury. This fact is a natural consequence of the manner in which the emperors conducted their

administration, for they seem only rarely to have thought in terms of an annual state budget. Although the military payroll was computed on an annual basis, the individual soldiers received their pay at intervals that varied at different times from one to six years.[21] The civil service was paid annually; but large sums were spent on luxury building and public donatives, apparently very irregularly. Even though the emperors did make some efforts to regulate these expenditures on an annual basis, they had no reliable means of predicting enemy invasions or raids, which could reduce revenues and force large extra expenditures. Further, certain revenues were both collected and spent in the provinces with only the surplus being sent to Constantinople, and these, like the revenues and payments in kind, were difficult to keep track of.[22]

All this does not mean that the government did not have a fairly accurate idea of its annual revenue and expenditure. But in practice state finance was largely a matter of meeting current expenses out of current revenues, adding to the reserve in the treasury when there were no large extraordinary expenses, and drawing on the reserve when there were. As far as we know, the government never borrowed in the middle Byzantine period. On the contrary, the Byzantines seem to have regarded a large surplus in the treasury as a necessary guarantee of monetary stability.[23] Under such conditions, the amount of the reserve in the treasury was of great interest. It was easy to determine: officials simply went in and counted the conveniently labeled bags of nomismata and miliaresia.[24]

According to the chronicles of Genesius and the Continuer of Theophanes, when Theodora was deposed from her regency in 856 she invited the senate into the treasury to see the reserve that she had accumulated. Much of it, she said, dated from the reign of her husband Theophilus. It was found to total 190,000 pounds of gold and 300 pounds of silver, the pound being the unit of account that the Byzantines used for large sums.[25] Nomismata were struck at 72 to the pound of gold, and miliaresia (each worth one-twelfth nomisma) apparently at 144 to the pound of silver. The silver was thus equivalent to a relatively insignificant 3,600 nomismata, and indeed miliaresia in this period were still partly ceremonial coins[26] The gold was equivalent to 13,680,000 nomismata. Probably the chroniclers' figure is rounded to the nearest thousand, if not ten thousand, pounds of gold, but with that reservation it seems trustworthy. This huge sum, of which Theodora was obviously proud, nearly equals the record reserve for the

middle Byzantine period and compares favorably with the record reserve for the early Byzantine period.[27] It represented the savings of fourteen years of moderate expenditure—plus whatever Theophilus had left in 842.

We also have a figure for the reserve left by Theophilus, but there is a problem with it. According to the Emperor Constantine VII Porphyrogenitus in his biography of Basil I, Theophilus left 97,000 pounds of gold, or 6,984,000 nomismata, plus an unspecified amount of silver, which like Theodora's was probably unimportant. However, Constantine goes on to say that by 856 Theodora had added 3,000 pounds of gold to this to make up an even 100,000 pounds.[28] This second statement contradicts the figure given by Genesius and Theophanes Continuatus, is absurdly tidy, and reduces Theodora's savings to an unbelievable insignificance.

By contrast, the first statement is perfectly plausible. Because Theophilus must have begun his twelve-year reign with some reserve in the treasury, it indicates that Theophilus did not save as much as Theodora, as we would expect when we take his building activity into account. Still, it means that much of Theodora's surplus went back to Theophilus' reign, as she said it did. As for the second statement, it looks like a fanciful addition to a true figure, or possibly a misunderstanding of a report that Theodora had increased Theophilus' reserve *by* 100,000 pounds (rounded from 93,000), not *to* that sum. If we assume that the first statement is correct, taken by Constantine from a good source, we find that Theodora's savings by themselves amounted to 6,696,000 nomismata, accumulated over a regency of fourteen years, one month, and 25 days.[29] Thus Theodora's average annual surplus was about 473,000 nomismata.

While this is a considerably more significant figure than the amounts of the reserves of 842 and 856 by themselves, it still leaves room for widely varying estimates of Theodora's average annual revenue and expenditure. By Bury's estimate, Theodora saved about one per cent of her revenue; by Stein's estimate, she saved eight per cent or more. Our sources are so much impressed by Theodora's surplus, and it compares so favorably with the other record reserves, that she seems likely to have saved almost the maximum of which the Byzantine government was capable at the time, and it has already been noted that her regency was a period of stability and fiscal restraint. We must also remember the preoccupation of Byzantine governments with running a large surplus. Under the circumstances, one per cent appears much too low a

figure for her savings. By modern standards, eight per cent would be an improbably high figure, but modern states generally do not need or want surpluses on anything like the Byzantine scale. For a record rate of Byzantine saving, eight per cent or more seems quite plausible, though of course this does not by itself prove that Stein was correct.

Expenditures

The Army Payroll

Of the major categories of state expenditure, the best-attested, and in all probability the largest, was the payroll of the army. The regular army consisted of two sorts of main divisions: the themes, normally stationed in the provinces, and the tagmata, normally stationed in and around Constantinople. Each theme had its corresponding province, also called a theme, and was commanded by a strategus who also served as military governor of the province. In Theodora's time, the troops of each theme were organized into one or more turmae, commanded by turmarchs, which were in turn subdivided into drungi, commanded by drungaries, which were further subdivided into banda, commanded by counts. Each of these divisions of troops corresponded to a territorial division of the same name: turma, drungus, or bandum. The soldiers were usually resident all over their provinces, and were called up for campaigns by their officers from muster-rolls.

Among the themes we may count the cleisurae, frontier divisions with corresponding provinces which differed from the themes mostly in the slightly lower rank of their chief commanders, the cleisurarchs. The tagmata were a more professional and mobile sort of force, though most of their soldiers usually lived outside the walls of Constantinople, and one tagma, the Optimates, was stationed in a small district of its own just across the Bosporus from Constantinople that resembled a theme. The officers of the tagmata generally corresponded to those of the themes, though some had different titles. The military establishment also included irregular troops, a navy, and some specialized support corps, but since these were distinct from the army proper and off its regular payroll they will be considered later.

Modern authorities agree, no matter how they interpret the sources, that in this period military pay was too low and too infrequently paid to support the soldiers by itself. The traditional view is that from the

seventh century the thematic soldiers were supported by so-called "military lands" (στρατιώτικα κτήματα), hereditary grants that they held in return for military service. In the tenth century, such lands are attested in laws that declare a certain amount of land for each thematic cavalryman or marine to be inalienable, and note that this inalienability had been a matter of custom previously. Other tenth-century laws specify that holders of military lands must either serve as soldiers or supply a soldier, on penalty of having their lands reassigned to others who will.[30]

Some scholars, however, have argued that this connection between military service and military lands did not exist much before the tenth century, and even then may not have applied to all thematic soldiers. In its place, they assume an hereditary obligation to serve combined with independent income from land or another source.[31] Given the overwhelmingly agricultural character of the economy of the Byzantine provinces, the unsubstantiated possibility that some soldiers had independent income from a source other than land seems very unlikely. As long as a soldier's place on the rolls and his land were passed on together to his heir, the question of whether the two were legally connected is not a very important one.

The fact remains that in the sixth century most imperial soldiers were paid a living wage in return for their service and had no land, while in the tenth century most soldiers were paid less than living wage and held land in return for their service. At some point the wage was lowered and the land was acquired. It seems a reasonable inference that in the seventh century, when the Empire's cash ran very low, it granted the land to make up for lowering the wage. The state did have land, and plenty of it, in the Emperor's own estates. In the fifth century, these totaled around 18.5% and 15% of the area of the two provinces of Africa Proconsularis and Byzacena and 16% of the land of the city of Cyrrhus, the only areas for which statistics are available. In the sixth century, over half the land in the province of Cappadocia Prima was crown property.[32] By the ninth century, however, the imperial estates consisted mainly of a few tracts in the vicinity of Constantinople. The mysterious disappearance of most of the imperial estates seems to be linked to the mysterious appearance of the military lands, which were held in return for military service just as the estates had formerly been held in return for rent.[33] In any case, by the ninth century the soldiers' cash pay can only have been a supplement to their income from military lands.

One specific figure for the army payroll in this general period is recorded, dating from shortly after Theodora's regency. According to Theophanes Continuatus and the Pseudo-Symeon, Michael III, having emptied the treasury by his extravagance, once melted down 20,000 pounds of the gold ornaments of the Palace commissioned by his father Theophilus, coined them, and made them the pay of the army (*τὴν τῶν στρατιωτῶν ῥόγαν*).[34] This incident apparently belongs to the very end of Michael's reign, because Michael did not have to melt down all Theophilus' ornaments; some time after Michael's death Basil I discovered a large part of them, mostly broken up, in an underground cache. Still, Michael did leave a virtually empty treasury.[35] Perhaps Michael's payment should be dated to Lent of 867, because 867 was the last year of Michael's reign and troops and officers were regularly paid during Lent.[36] The only change that Michael is known to have made in the army since Theodora's regency was to separate the Theme of Colonia from the Armeniac Theme; this measure was simply administrative, and probably did not involve adding new soldiers to the army.[37] Therefore, Michael's payment of 867 was probably approximately what the army would have been paid under Theodora. The 20,000 pounds of gold that Michael paid—obviously a round number—would have made 1.44 million nomismata.

The problem is that, on the basis of the chronicles alone, we cannot be sure that this was the amount of the *annual* payroll. According to the Arab geographer Ibn Khurdādhbih, who with other Arab geographers gives extensive information about the Byzantine army as it was in 839/43, the soldiers were ordinarily paid every three years, and sometimes soldiers were even paid for four, five, or six years together.[38] In the *De Ceremoniis,* Constantine VII writes that "the old way," probably that of his father Leo VI (886–912), was to pay the soldiers every four years.[39] The soldiers did not need their pay for their livelihood, since their principal source of support was their farms. Before 839/43 the government had apparently been experimenting with different cycles of payment—probably three and six years, because under a six-year cycle the payments for four and five years could have been made to soldiers who had only joined the army that long ago. Three years was normal in 839/43; six years seems to have been an earlier system; four years was a considerably later arrangement. Since the pay was computed annually it was presumably paid every year originally, and Constantine implies that it was again paid

every year in his time. For late in Michael's reign, we can only guess at the cycle.

For our purpose the important question is how many years' pay was represented by Michael III's payment. Constantine's explanation of the four-year cycle suggests that, no matter what the cycle was, the amount paid every year during Lent was roughly equal to the annual average for the payroll. Constantine gives a list of four groups of themes, the first group to be paid one year, the second the next, and so on, repeating after four years. Constantine's list must be incomplete, because even at the earliest date it could be assigned (under Michael III, since it includes Colonia) it would leave out more than half the themes.[40] Nevertheless, it indicates that the emperors did not follow the highly inconvenient budgetary practice of paying nothing for several years and then an immense lump sum of arrears. They rather tried to equalize their expenditure on an annual basis. If this inference from Constantine's evidence is correct, Michael III's payment in 867 should have been roughly, and perhaps almost exactly, the amount of the theoretical annual payroll even if the cycle of payment was then more than one year.

Fortunately, the information on the size and pay of the Byzantine army given by the Arab geographers allows us to make an independent estimate of the theoretical annual payroll. This information is found in four interrelated Arabic accounts that are evidently derived from a lost work by Al-Jarmī, an Arab official who was a prisoner in Byzantine hands for several years before he was released in 845. Internal evidence shows that Jarmī described the army as it was after the abolition of the special corps of Khurramites in late 839 and before Cappadocia was raised in status from a cleisura to a theme by 842/3. The surviving material from Jarmī's work appears in the works of Ibn Khurdādhbih, Ibn Al-Faqīh, Qudāmah Ibn Ja'far, and Al-Mas'ūdī.[41]

The reliability of these accounts has been questioned by some scholars and accepted by others. Some find Jarmī's total of 120,000 Byzantine soldiers improbably high. Nonetheless, Jarmī reported much demonstrably correct information and nothing that is obviously false. The question is whether Jarmī had access, directly or indirectly, to the official roll of the Byzantine army, complete with its command structure and pay scale. The best means of deciding this question is to compute what the annual payroll would have been on the assumption that Jarmī's figures are correct. If the resulting total is much higher than 1.44 million nomismata, Jarmī is presumably wrong. If it is about

a third or a quarter as much, it may indicate that Michael III's payment was indeed three or four years' pay for the whole army. If it is about the same, the presumption will be that Jarmī was well-informed, and that the annual payroll was about 1.44 million nomismata in both 839/43 and about 867.

The roll of the army is given by Ibn Al-Faqīh and Qudāmah, with merely textual variants that can be reconciled by comparing the two. As Bury noted, Qudāmah must be wrong when he puts the Thracesian and Armeniac themes among the smaller themes with 6,000 and 4,000 men, because after the Anatolic Theme of 15,000 men they were the highest in rank.[42] Ibn Al-Faqīh is doubtless right when he gives them 10,000 and 9,000 men respectively, and in fact we can see that Qudāmah (or his copyist) has repeated his figure for the Thracesians from the Opsician Theme, which precedes them in his list, and his figure for the Armeniacs from the following Theme of Chaldia. On the other hand, for Chaldia, one of the most junior Asian themes, Qudāmah's 4,000 men is clearly right, and Ibn Al-Faqīh's "10,000 men and two turmarchs" is evidently repeated from the Thracesian Theme, for which it is correct. The strength of the Cleisura of Seleucia has dropped out of Ibn Al-Faqīh's text, but Qudāmah supplies it; Qudāmah's figures for the themes of Macedonia and Paphlagonia have disappeared in a lacuna, but Ibn Al-Faqīh supplies them. The figures that result from these comparisons appear in the first two sections of Table IV.[43] They agree with the total of 70,000 soldiers for the Asian themes given by Qudāmah, which evidently goes back to Jarmī, his source.[44]

No Byzantine figures for the strength of these themes have been preserved.[45] But Jarmī's figures may be usefully compared with the ranks of the heads of the themes recorded by the *Tacticon Uspensky,* an official document dating from 842/43.[46] The *Tacticon* and Jarmī list exactly the same Eastern themes and cleisurae.[47] The order of the ranks of the strategi in the *Tacticon* also agrees well with Jarmī's figures for the number of soldiers in each theme. Although we would not expect this correspondence to be exact, because the ranks depended on the seniority and location of the theme as well as its strength, the approximate correspondence that does appear shows that Jarmī was not guessing at random. The ranks are noted in the second column of Table IV.

The Arab sources also give figures for the tagmata, the Empire's mobile army based in and around Constantinople. Qudāmah names

six tagmata of 4,000 men each, two of which, the Numera and the Optimates, were infantry, the other four being cavalry. Ibn Al-Faqīh also says that the Optimates numbered 4,000, but does not mention the other tagmata. Ibn Khurdādhbih reports that the "garrison of the Palace," by which he evidently means the Numera and the Watch, consisted of 4,000 infantry and 4,000 cavalry. Partly contradicting himself, he then notes that "the Emperor's camp, whether in his residence or on campaign," which must mean all the tagmata, consisted of four cavalry units of 6,000 soldiers each. This seems to be a mistake for *six* units of *four* thousand soldiers each, influenced by the fact that the number of cavalry units really was four.[48]

The six tagmata named by Qudāmah correspond to those named in the *Tacticon Uspensky,* though Qudāmah follows the practice found in some Byzantine sources of using the name "Numera" to refer to the two units listed in the *Tacticon* as the Numera and the Walls. More impressive confirmation of Qudāmah follows from the treatise of Philotheus on court ceremonial, an official source dated to 899. Philotheus notes that all the commissioned officers of the four cavalry tagmata were invited to dinner by the Emperor at Christmas time, and that they numbered 204 for each tagma apart from the commanders. As I have pointed out in a recent article, this is precisely the number of commissioned officers that would correspond to a unit of 4,000 soldiers according to the command structure described by both Jarmī and Byzantine sources.[49] The distribution of these commissioned officers (that is, of the officers senior to the decarchs except for the commanding domestic or drungary) is shown in the first four columns of Table III. The figures for the strength of the tagmata appear in the final section of Table IV.

The Arab lists leave out the themes of the West, presumably because these lower-ranking themes normally played no part in defense against the Arabs. Whether Jarmī included figures for these themes in his original work is unclear. Nevertheless, his total for the whole regular army, reported by Ibn Khurdādhbih, must have included them, because it is 120,000, while the itemized figures reported by Qudāmah and Ibn Al-Faqīh total only 104,000.[50] According to the *Tacticon Uspensky,* there were eight of these Western themes at the date of Jarmī's list (excluding the ephemeral Theme of Crete of 842/43). Therefore in Jarmī's time these eight units should have had a total strength of 16,000 and an average strength of 2,000 men each. The highest-ranking was the Theme of Peloponnesus. In 941, when this

theme occupied the same territory as in 842, the Emperor Romanus I excused its soldiers from service in South Italy in return for a payment of 7,200 nomismata, assessed at the rate of five nomismata each except for poor soldiers, who paid five nomismata for every two. The number of soldiers must therefore have been well over 1,440 and well under 2,880; it was probably, at least in theory, 2,000.[51]

The second-ranking of the themes of the Western class was the Cibyrrhaeot Theme, which (except for Crete) was the only naval theme at the date of the *Tacticon Uspensky*. At this date, the Strategus of the Cibyrrhaeots had as his immediate subordinates two drungaries, the Drungary of the Aegean Sea and the Drungary of the Gulf (of Attalia); according to Jarmī a drungary of a theme commanded 1,000 men, so that if these were the same sort of drungary the Cibyrrhaeots would have had 2,000 soldiers in 842/43.[52] Just afterward, in 843, the Cibyrrhaeot Theme was divided, and its previously subordinate Drungus of the Aegean Sea became an independent theme.[53] In 911/12, when the Cibyrrhaeot Theme had not been divided further, it sent 1,050 officers and soldiers on an expedition to Crete, which seems to have been virtually its entire force. By the time of this expedition the Theme of the Aegean Sea had itself been divided, part of it becoming the new Theme of Samos. The Aegean Sea sent 490 soldiers and officers to Crete, and Samos sent 700.[54] Combining these totals, we find that in 911/12 the themes that had been part of the Cibyrrhaeot Theme of 842 had roughly 2,240 soldiers and officers, a number which again suggests that the theoretical strength of the Cibyrrhaeots was 2,000 soldiers at the earlier date.

We shall see later that the two lowest-ranking themes, Dyrrhachium and the Climata, were probably created in late 839, when 2,000 soldiers were sent to each of them from the disbanded corps of the Khurramites.[55] Because, as we also shall see, the command structure described by Jarmī assumes that each theme had an even number of thousand soldiers, I have tentatively listed 2,000 soldiers for all eight Western themes in 842. Though one of the middle-ranking themes could conceivably have had 3,000 men and another 1,000, the rankings make this unlikely, and in any case the total payroll would be almost exactly the same no matter how the total of 16,000 was distributed.

The figures from Jarmī considered so far include only soldiers and not officers. Both Ibn Khurdādhbih and Qudāmah include a description of the command structure of a theme with 10,000 soldiers and two turmarchs, which could only be the Thracesian Theme. According to

them, the strategus of such a theme had under him two turmarchs, each commanding 5,000 soldiers (i.e., a turma). Each turmarch had under him five drungaries, each commanding 1,000 soldiers (a drungus). Each drungary had under him five counts, each commanding 200 soldiers (a bandum). Each count had under him five "centarchs," who in spite of their name each commanded 40 soldiers. Each centarch had under him four decarchs, each commanding ten soldiers. The Arabs specify that this system of organization held good for the entire army.[56]

The scheme is partly confirmed by the treatise of Philotheus. Philotheus, taking the Anatolic Theme as his example but specifying that the other themes were organized in the same way, mentions the turmarchs, drungaries, and counts in that order. He also mentions seven staff officers of various kinds whom the Arabs do not mention. Philotheus omits the centarchs and decarchs, presumably because he was concerned only with the higher-ranking officers.[57] The *Tactica* of Leo VI note that centarchs and decarchs were non-commissioned officers, chosen from the ranks.[58] Since the seven officers mentioned by Philotheus but not by the Arabs are all in the singular, we now have figures for the numbers of each kind of officer in the Thracesian Theme, from which we can calculate the total number of officers and soldiers: 11,320. The officers and numbers are given in the first two columns of Table I.

Using this paradigm, we can easily compute how many officers and soldiers each other theme had, first noting that at this date the Anatolics and Armeniacs had three turmarchs each, the Thracesians and Bucellarians two, and the other themes one, and then figuring the rest of the officers beginning with one drungary for each drungus of 1,000 soldiers.[59] The Cibyrrhaeots, who as we shall see had additional ships' officers, and Sicily, which had a subordinate Duke of Calabria as a sort of second turmarch, were special cases.[60] Though we cannot be certain that no other variations disturbed the uniformity of this system or organization, no variation is likely to have been of a sort that would make any appreciable difference in the total number of officers. The suggested formula for computing the number of soldiers and officers in a theme appears in the first note to Table I.

How much were these men paid? At first glance, the data, this time reported by Ibn Khurdādhbih, appear self-contradictory. He says that the pay of the "officers" was a maximum of 40 pounds of gold a year, descending to 36, 24, 12, 6, and as low as one pound, while the "sol-

diers" received between eighteen and twelve nomismata. A little later, he says that, according to a well-informed source, the pay of the "officers" ranged between three pounds and one pound, while the "soldiers" received one nomisma in their first year of service, two in their second, three in their third, and so on until their twelfth year of service, when they received the "full pay" of twelve nomismata which was evidently their pay in all later years.[61]

The explanation of this seeming contradiction appears to be that in each case the words "officer" and "soldier" are being used to refer to slightly different groups. As Bury observed, the salaries of 40, 36, 24, 12, and 6 pounds mentioned for "officers" must be those for the various grades of strategi and cleisurarchs, not for their subordinates. Constantine VII records the salaries for the different strategi and cleisurarchs under Leo VI as 40, 30, 20, 10, and 5 pounds a year, which, Bury concluded, means that the salary of each grade, except for the highest, had been reduced somewhat in the meantime. The likely salaries of the strategi and cleisurarchs under Theodora can therefore be determined by substituting Ibn Khurdādhbih's salaries into Constantine's table. These salaries correspond closely with the ranks of the strategi and the numbers of soldiers in each theme as reported by the Arab sources. They are listed in the third column of Table IV.[62]

The remaining officers' salaries—from one to three pounds—must apply to the remaining three grades of commissioned officers. That is, each turmarch presumably received three pounds, each drungary two pounds, and each count one pound. Thus, if we include both the strategi and their commissioned subordinates, the "officers" made between forty pounds and one pound, but if we include only the subordinates, the "officers" made between three pounds and one pound. This leaves the non-commissioned officers among the "soldiers," from whom they were chosen. The top "soldier's" pay of eighteen nomismata could only have gone to the centarchs, who are given a rank higher than the common soldiers in the complete rank list of Philotheus. The decarchs, who are not mentioned separately from the soldiers in the complete rank list, evidently received just twelve nomismata.[63] For the common soldiers twelve nomismata was "full pay," which they received only in their twelfth year of service and thereafter. Thus if we count both non-commissioned officers and common soldiers and consider only the common soldiers' full pay, the "soldiers" earned between eighteen and twelve nomismata; the "soldiers" to whom the twelve-year formula applied were the common

soldiers only. This interpretation makes sense of all Ibn Khurdādhbih's figures.

As for the seven staff officers whom the Arabs do not mention, the three officers ranking below the turmarchs but above the drungaries presumably received either three pounds or two. We can determine which by consulting a list preserved in the *De Ceremoniis,* which records the following supplementary pay for the themes that took part in the expendition against Crete of 945:

turmarchs	30	nomismata	each
counts of the tent	20	nomismata	each
chartularies of the themes	20	nomismata	each
domestics of the themes	20	nomismata	each
drungaries	20	nomismata	each
counts	6	nomismata	each
soldiers	3	nomismata	each
ships' officers (*ναύκηροι*)	4	nomismata	each
oarsmen (Mardaïtes)	3	nomismata	each[64]

This pay-list indicates that in comparison with ordinary annual pay the supplementary pay for a campaign was proportionately higher for the soldiers than for the officers. This arrangement apparently reflects the fact that the soldiers' regular cash pay understated their relative position, because their main source of support was the military lands. Though of course the pay scale at the date of this list may have been different from that about 842, the list still suggests that the three higher-ranking staff officers (the count of the tent, chartulary of the theme, and domestic of the theme) normally received the same salaries as the drungaries: in 842, two pounds a year. I have used this figure in Table I.

The four remaining staff officers (the centarch of the spatharii, count of the hetaeria, protocancellarius, and protomandator) ranked below the counts, who received one pound of gold, and above the centarchs, who received eighteen nomismata. Although the highest-ranking of the four has the title of centarch, he presumably received a higher salary than the ordinary centarchs, because he is listed by Philotheus among the subordinates of a strategus while ordinary centarchs are not. These four officers should therefore have been paid either one pound or something between one pound and eighteen nomismata. The grades of pay mentioned by Ibn Khurdādhbih form a sort of pattern if they are

all expressed in pounds of gold: 40, 36, 24, 12, 6, 3, 2, 1, 1/4, 1/6, and between 1/6 and 1/72 (the last three sums being equal to 18, 12, and between 12 and 1 nomismata). But in this sequence the gap between one pound and one-quarter pound is uniquely large: 75%, though in all other cases the gap between grades of pay is 50% or less. The pattern suggests that the Arab texts left out not only the names of these four staff officers but also the grade of pay that belonged to them: one-half pound or 36 nomismata.[65] Though the pay of these four petty officers would have had a negligible effect on the total payroll, establishing the structure of the pay scale will prove useful later.

Philotheus states that the naval themes, a category which in 842 seems to have included only the Cibyrrhaeots, had two additional sorts of officers: centarchs and protocarabi.[66] These, according to the *Naumachica* of Leo VI, were the officers of the troop-ships or dromons, each of which had one centarch and two protocarabi.[67] According to the *De Ceremoniis,* in 911/12 the Cibyrrhaeot Theme had fifteen dromons, and therefore fifteen centarchs and thirty protocarabi.[68] Since these numbers apply to a force of 1,050 men, they should presumably be doubled for 842, when the Cibyrrhaeots were twice as numerous. A passage in Liudprand of Cremona's *Antapodosis* shows that the protocarabi received no less than one pound of gold as pay, and they and the centarchs probably received no more, to judge from their ranks.[69] The Cibyrrhaeots in 842 would therefore have had thirty dromons, thirty centarchs, and sixty protocarabi, with the officers paid a total of 90 pounds of gold or 6,480 nomismata.

The Byzantine army also included a scattering of other men who are not mentioned by name in the system described in Table I, but most of them were probably included in it. For example, among the four lowest-ranking officers the centarch of the spatharii and count of the hetaeria look like commanders of elite units of guardsmen. Probably they were simply specialized centarchs, so that the spatharii and hetaeria were simply groups of forty men in a bandum at the theme's headquarters, and so included in their theme's total. According to the *Tactica* of Leo VI, two mandators and two bandophori—messengers and standard-bearers—were chosen from each bandum, as were eight to ten deputati or medics.[70] Since all these remained attached to their bandum they were presumably included in its total of 200 soldiers and not replaced.[71] The same is probably true of a few other specialized men mentioned in Leo's *Tactica,* except for the physicians, engineers, and spies, who cannot have been many and may well have been off the

regular army payroll in any case.[72] For purposes of calculating the payroll, any such extra men and pay for them would have been inconsequential.

Of course, the system of military organization described by Jarmī is an ideal one, consisting of units of even thousands of men divided into thousands, two hundreds, forties, and tens all theoretically at full strength. In practice, especially after heavy losses in battle, the effective strength of the army must have been less. Yet it does not follow that the official muster-rolls (*στρατιωτικοὶ κατάλογι*) did not have the full number of names on them.[73] The Anonymous Vári, author of a practical military handbook of the tenth century, advises commanders to conduct a mustering (*ἀδνούμιον*) of their forces before a campaign, "so that they may know how many are present to campaign for [our Emperor's] holy Empire, how many have been left behind at home, how many have fled, and besides that which ones have been left behind because of illness that is not feigned, which ones have died, and which have both their horses and their military equipment in good condition."[74] Plainly at any given time the muster-rolls included a number of soldiers who had deserted or died, or were otherwise unavailable for service.

What happened to the pay of these missing soldiers? Those who had not deserted or died presumably continued to draw pay even if they did not serve. The pay of those who had died would probably have gone to their families until the authorities learned of the death; apparently when such a discovery was made, St. Euthymius the Younger was entered on the roll of the army in place of his dead father, though since Euthymius was only seven years old this too was probably an abuse.[75] Corrupt officials could also have kept dead soldiers or deserters on the rolls and pocketed their pay. But in principle the soldier was to be replaced immediately; Qudāmah says that as soon as a soldier died his decarch reported up the chain of command so that a replacement could be found without delay.[76] The replacement would normally be the dead soldier's son, but could be the son of another soldier or anyone else who would draw the pay and the income of the military land grant. Again, the replacement might evade military service, but neither this nor any of the other possibilities would have affected the number to whom pay was allotted. If the number of soldiers on the roll about 842 was 120,000, as Ibn Khurdādhbih says it was, that would have been the number who were paid.

Much the largest part of the payroll naturally went to the common soldiers, with their pay of one nomisma the first year of service, two the second, and so on, with twelve nomismata for the twelfth and all succeeding years. Ibn Khurdādhbih says that soldiers were to be enrolled as "beardless youths."[77] St. Luke the Stylite was enrolled at age eighteen, which his hagiographer implies was the proper age.[78] Though these sources do not mention a retirement age, a Chrysobull of 1187 notes that a group of oarsmen in Byzantine service should be not under age twenty or over age sixty, and sixty must have been at least the approximate age at which soldiers retired in the ninth century.[79]

To compute what the average pay would have been per soldier, we should ideally have a life table for Byzantine men, compiled from gravestones or tax records, which would show how many men enrolled at about age eighteen would have lived until retiring at about age sixty, and at what ages the rest would have died. In practice, we have no such life table, and the paucity and vagueness of Byzantine gravestones and tax records make it unlikely that a good one will ever be compiled. However, we have such tables for the men of Roman Iberia, Roman Africa, and medieval England, where living conditions and medical knowledge were not much different from those in Byzantum.[80] If the Roman Iberians in our life table had been enrolled in the Byzantine army at age eighteen, retired at sixty, and paid at the Byzantine rate, their average annual pay would have been about 9.5 nomismata. The average for Roman Africans would have been about 9.9 nomismata. For Englishmen, it would have been about 9.5 nomismata in 1280–82 and 1310–12, and about 10.0 in 1340–42. To allow for deaths in battle, late enlistments, early retirements, and promotions from the ranks to decarch or centarch, 9.0 nomismata is probably a good rough average for Byzantine soldiers. A figure as high as 9.5 or as low as 8.5 would change the total payroll by only 60,000 nomismata either way, or about four per cent.

Finally, there is the problem of the tagmata. The lists in the treatise of Philotheus show that the officers of the tagmata generally corresponded to those of themes, though a number of the tagmatic officers had different titles that dated from an earlier system of organization, and there were some substantive differences as well. The differences can be seen by comparing Table I with Table III. Like a theme, a tagma had a chartulary, one count (or his equivalent) for each bandum of 200 men, and a protomandator (or his equivalent). Also like a theme, each of the four cavalry tagmata had two mandators and two

standard-bearers for each bandum and one centarch (or his equivalent) for each forty men—but these, unlike their counterparts in the themes, had the rank of officer, and the standard-bearers of each tagma formed four groups with different titles.

The Numera and Walls had mandators and the equivalents of centarchs with the rank of officer, though no standard-bearers; the Optimates had neither centarchs, mandators, nor standard-bearers who were officers. Instead of the themes' turmarchs and drungaries, the tagmata had one topoteretes for each 2,000 soldiers. None of the tagmata had equivalents of the themes' count of the tent, domestic of the theme, centarch of the spatharii, count of the hetaeria, or protocancellarius (except that the Optimates had a protocancellarius in place of a protomandator). The tagmata, like the themes, evidently had decarchs who did not rank as officers. As noted earlier, this description of the tagmata can be demonstrated—and Jarmī's figures for their strength confirmed—by comparing it with the numbers Philotheus gives for the tagmatic officers in his guest lists for the Emperor's Christmas banquets.[81]

The rate of pay of the tagmatic officers and soldiers remains to be determined. If we assumed that they were paid at the same rate as their equivalents in the themes we would probably arrive at a total that was accurate enough for most purposes. But it does not seem likely that the centarchs, standard-bearers, and mandators of the tagmata, who counted as officers, were paid as little as their non-commissioned counterparts in the themes. On the other hand, some tagmatic officers ranked below their thematic counterparts in the *Tacticon Uspensky* and Philotheus, so that they might seem to have been paid less.

This brings up the larger question of whether the pay of a Byzantine office corresponded to its rank, as has been assumed so far. Liudprand of Cremona's eyewitness account of the payment of Byzantine officials at Constantinople on the three days before Palm Sunday of 950 strongly indicates that pay did follow rank. According to Liudprand, the Emperor paid the highest officials personally with bags of gold coins that had been prepared for them (some also received robes, which do not concern us here). The first to be paid were the Rector, the Domestic of the tagma of the Schools, and the Drungary of the Fleet, each of whom received so much gold that he had to carry it on his back or have it carried for him by assistants. Next came 24 magistri, who received 24 pounds of gold each. Then came patricians, who received 12 pounds each. They were followed by an "immense crowd of proto-

spatharii, spatharii, spatharocandidati, coetonitae, manglabitae, and protocarabi," who received between seven pounds and one pound each according to his rank. Besides these officials paid in person by the Emperor, those who received less than one pound were paid during Holy Week by the Paracoemomenus.[82]

Of course, Liudprand visited Constantinople a century after the regency of Theodora, and after various changes had occurred, such as the upgrading of the office of Drungary of the Fleet.[83] Moreover, Liudprand's account is informal and imprecise, mixing offices and dignities without consistency. He assigns a salary of well over 24 pounds to the Domestic of the Schools, 12 pounds to a patrician, and no more than seven pounds to a protospatharius, though in fact the Domestic of the Schools could hold the dignity of either a patrician or a protospatharius.[84] Apparently pay was determined by office, not by dignity, but as the officials with their dignities were read off the payroll Liudprand sometimes paid attention to the dignity rather than the office.

Despite its late date and imprecisions, however, Liudprand's account is generally compatible with the evidence of Jarmī and the *Tacticon Uspensky.* Liudprand puts the Rector first and gives him a salary well over 24 pounds; the *Tacticon* indicates that the Rector outranked the best-paid strategi, who according to Jarmī were paid 40 pounds. Liudprand puts the Domestic of the Schools next, again with a salary well over 24 pounds; the *Tacticon* puts the Domestic right after the best-paid strategus, who was paid not in the capital but in his province and again earned 40 pounds according to Jarmī. After mentioning "magistri" earning 24 pounds, a title of dignity that did not exist in this form in the ninth century, Liudprand mentions "patricians" earning 12 pounds.[85] The *Tacticon* mentions various patricians who held office in the capital just after mentioning the lowest-ranking strategi, who according to Jarmī earned 12 pounds.

Liudprand then lists protospatharii, spatharii, spatharocandidati, coetonitae, manglabitae, and protocarabi, all earning between seven pounds and one; the *Tacticon* puts all these well after the lowest-ranking strategi and among the military officers who Jarmī indicates earned six, three, two, or one pound. We may now ask whether all the salaries deduced so far correspond to the rank of the respective officers in the *Tacticon,* and whether the *Tacticon* provides any indications of its own to show where one pay grade might have ended and another begun.

To answer these questions, we cannot use the text of the *Tacticon* exactly as it is. In the first place, the *Tacticon* lists several of the very highest offices twice, once for the rank belonging to the office and once for the rank of the office-holder if he also held a special dignity, such as that of patrician. Philotheus provides a separate ranking of these highest offices, which Nicolas Oikonomidès has used to delete the *Tacticon's* rankings by dignities and thus to reconstruct the slightly different ranking by officers at the time of the *Tacticon.*[86] This is the ranking that presumably determined pay. Further, the *Tacticon* includes clerics, titular officials, obsolete officials, and dignitaries without offices, none of whom would have been on the regular payroll. For example, both in Liudprand's time and in that of the *Tacticon* the Syncellus ranked after the Rector and before the Domestic of the Schools, yet Liudprand does not mention his being paid by the Emperor between them; as a cleric, the Syncellus was evidently paid from church revenues.[87] Finally, the text of the last portion of the *Tacticon* is defective, and must be supplied from a part of the treatise of Philotheus that parallels it closely.[88] With these additions and deletions, the *Tacticon Uspensky* should show which offices were on the payroll about 842 and how they ranked in relation to each other.

Salaries for forty-one of these offices, about a fifth of the total, have already been deduced on the basis of Jarmī and the *De Ceremoniis.* When these salaries are compared with the ranks of the offices to which they apply, higher pay corresponds to higher rank in every case but one. This exception is the Strategus of Macedonia, who has been assigned a salary of 36 pounds of gold here but who ranked before and after strategi assigned salaries of 24 pounds. The salary of the Strategus of Macedonia may well have been incorrectly assigned on the basis of a single figure in the *De Ceremoniis* that could after all be corrupt.[89] In any case, the discrepancy is not sufficient grounds to reject the general principle that pay followed rank.

The military salaries deduced from Jarmī seem to indicate divisions in the rank list of offices that correspond to the various grades of pay. These eleven groups of offices have been conjecturally marked off in Table II, which lists all the offices in the order of their rank except for the Strategus of Macedona, giving references to the *Tacticon* and Philotheus and noting where and how their texts need to be modified for this purpose. Military officials whose salaries have already been deduced from Jarmī are indicated by an asterisk in the table.

The divisions between the groups assigned salaries of 40, 36, 24, and 12 pounds are plain because each division comes between two strategi whose salaries are known. (Admittedly, at the head of the list the Rector might have had a salary somewhat higher than 40 pounds.) The divisions between offices with salaries of 12, 6, and 3 pounds seem to be indicated in the *Tacticon* by the mention of the exotici, dignitaries of the provinces who held no offices and were presumably unpaid. Oikonomidès has already adopted these points of division, noting "je considère qu'il faut arrêter ici à cause de la mention des *exôtikoi,* qui sont les derniers dans toutes les classes de dignitaires" also in Philotheus.[90]

But here the exotici do not mark off a division simply in title of dignity, since they come in the middle of the groups of protospatharii and spatharocandidati; they rather separate groups of officials who can be assigned different salaries on the basis of Jarmī's report. The first group includes the lowest grade of strategi, either paid twelve pounds or taking twelve pounds of pay from their revenues; the second group includes the cleisurarchs, paid six pounds; and the third group includes the turmarchs, paid three pounds.[91] The mention of two other kinds of dignitaries, biconsuls and cubicularii, marks the end of this group and the beginning of the group earning two pounds, which includes four thematic officers already assigned this salary: the counts of the tent, the chartularies, the domestics, and finally the drungaries, who must be the last since they are followed by the counts, assigned a salary of one pound.[92]

At this point the text of the *Tacticon* becomes defective and must be completed by referring to the text of Philotheus. Though by this level of the hierarchy all the officials would have been without a dignity—the term for officials without a dignity is ἄπρατοι-Philotheus seems to mark the salary divisions in his list by repeating the word ἄπρατοι at the end of each one.[93] The first group extends from the counts of the themes to the protonotarii of the herds, who are specified as ἄπρατοι; besides the counts, already assigned a salary of one pound on the basis of Jarmī, this group includes the protocarabi, listed last by Liudprand among those who received at least one pound.

The next group extends from the bandophori of the Watch to the paraphylaces of the castra, again specified as ἄπρατοι; this group includes posts already assigned salaries of one-half pound: the protocancellarii and protomandators of the themes and "the centarchs of the strategi of the themes," who are evidently the same as the centarchs

of the spatharii and counts of the hetaeria.[95] Afterward comes a small group including "the centarchs of the banda," apparently the centarchs who commanded 40 men each in the themes, already assigned pay of one-quarter pound.[96] At the very end come the soldiers of the tagmata and the themes, evidently including the decarchs, with their full pay of one-sixth pound (12 nomismata), or one nomisma per year of service until that sum was reached.[97] The whole conjectural pay scale is shown in Table II, and used to assign salaries to the officers of the tagmata in Table III in order to compute the total payroll of each tagma.

One possible objection to this reconstruction of the pay scale is that the soldiers of the tagmata, as a more professional and mobile force than the soldiers of the themes, ought logically to have been paid more. Most of the officers of the tagmata do seem to have been paid more than their counterparts in the themes. Even the maximum pay for a soldier of twelve nomismata mentioned by Jarmī would have been below the living wage of about seventeen nomismata a year.[98] Though the soldiers of the themes also had income from military lands, whether the soldiers of the tagmata had lands is not fully clear.

Unlike the thematic soldiers, however, the tagmatic soldiers received their equipment and the so-called imperial siteresia, a generous monthly living allowance supplied in grain and separately from the payroll.[99] Besides this, at least some of the tagmatic soldiers do appear to have had military lands like the thematic soldiers. One of the tagmata, the Optimates, functioned virtually as a theme with its own territory in Bithynia, across the Bosporus from the capital.[100] Other tagmatic soldiers were quartered in Thrace, Macedonia, and Bithynia, and were paid together with the thematic soldiers in those places.[101] Under the circumstances, the difference between tagma and theme cannot have been very great, and the somewhat more professional status of the tagmata could have been maintained by their siteresia and equipment, without additional pay.

A similar answer can be made to the possible objection that the cavalry soldiers should have been paid more than the infantry. Qudāmah describes the 8,000 men of the Optimates and Numera (including the Walls) as infantry, the 16,000 men of the other four tagmata as cavalry, and the 70,000 men of the Asian themes as mixed cavalry and infantry.[102] In the themes the level of the command structure at which cavalry and infantry became distinct was almost certainly the forty-man command of the centarch, because in the tenth century its successor, the fifty-man command of the pentecontarch, was the

basic cavalry unit.[103] If each bandum, the smallest territorial command, had one cavalry unit under a centarch, the ratio of cavalry to infantry would have been 1:4—a ratio that has already been suggested by James Howard-Johnston on the basis of the figures in military handbooks.[104]

Yet in the system of military organization described by Jarmī, the *Tacticon Uspensky,* and Philotheus, the distinction between infantry and cavalry is never made, nor is there any hint of it in Jarmī's information on military pay. Certainly maintaining a horse would have been a substantial extra expense for a soldier; but probably the difference was made up not by additional pay—the total amount of cash required would have been enormous—but by the cavalryman's having a larger military estate than the infantryman. In the tenth century, when Nicephorus II wanted to create a new class of more heavily armed cavalry, he did not pay them more; he rather legislated that they should have military lands of a minimum value of twelve pounds of gold apiece instead of the usual four pounds.[105]

We now have a complete formula for calculating the payroll of the Byzantine army according to the Arab sources. This formula is given in note 2 to Table I for the themes, and illustrated for the Thracesian Theme in the same table. The pay of the tagmata is computed in Table III on the basis of the pay scale in Table II. Though as a whole the formula incorporates a number of conjectures, these relate almost entirely to minor points about the payment of the officers that would have a minimal effect on the total amount of the payroll. Bury, using the same data from the Arab geographers but making somewhat different assumptions, calculated that the payroll of the Eastern themes "amounted to not less than £500,000," meaning 833,333 nomismata.[106] The formula proposed here puts the payroll of those themes at 927,096 nomismata. Vryonis' estimate that the payroll of the Asian themes alone may have reached one million nomismata was computed by combining the material of Jarmī partly anachronistically with earlier and later data.[107] Still, the present estimate of 809,652 nomismata for these themes is of the same order of magnitude. For the whole army, the formula indicates a payroll of 1,447,164 nomismata about 842, or 20,099 1/2 pounds of gold. Though the precision of this figure is simply a misleading effect of the formula, the result agrees very well with the figure of 20,000 pounds of gold that Michael III paid the army about 867.[108]

The estimates for all the themes and tagmata appear in Table IV. Again, these are approximate figures, whose apparent precision is misleading. Given the roughness of the estimate of nine nomismata as the average pay of a common soldier and the possibilities that some extra men may have been left out or that there may have been some temporary vacancies on the rolls for which no pay was allotted, all the figures for the payrolls of individual themes and tagmata are probably accurate only to the nearest ten thousand nomismata. Finally, if in 867 the soldiers were not all paid annually, even under a carefully equalized cycle the emperors would each year have paid out somewhat more or less than the theoretical annual payroll, which would only have been an annual average. Besides, the chroniclers' figure of 20,000 pounds is plainly a round one. Nevertheless, the general agreement of the calculations made from Jarmī's figures with the figure for the payroll reported by the chronicles, depending as they do on quite different sources, is difficult to explain away. If it is not explained away, it indicates that Jarmī somehow gained access to official figures, and that the totals given in Table IV for the numbers of the army and its payroll are, within a reasonable margin for error, correct. We may therefore adopt about 1.44 million nomismata as the amount of the annual payroll of the army under both Theodora and Michael III.

Other Military Expenditures

The army payroll discussed thus far included only the soldiers and officers of the themes and tagmata who were paid directly from Constantinople. As such, it left out the pay of a number of members of the Byzantine military establishment. For one thing, according to the *De Ceremoniis* seven of the strategi were not on the regular army payroll but instead took their own salaries from the revenues of their themes before forwarding the balance to the capital. Another, the Strategus of Chaldia, received twelve pounds of his salary from the capital and took another twelve pounds from his theme's revenues.[109] Though the salaries of the other seven strategi are not specifically recorded, it seems likely from their position in the *Tacticon Uspensky* that they were paid twelve pounds of gold each. The additional pay of all eight strategi therefore probably totaled a relatively modest 96 pounds of gold, or 6,912 nomismata. Since this sum was part of the cash budget of the Empire and would have appeared on the books of the central government, it should be included in our calculations.

In addition, the *Tacticon* lists two independent military commanders who were outside the system of themes and tagmata and presumably paid apart from them: the Archon of Dalmatia and the Archon of Cyprus, each in the category with pay of three pounds of gold. Philotheus does not give a separate list of subordinates for the archons. Presumably they had staff officers like the strategi, paid 576 nomismata for each archontate. If at least their centarch of the spatharii and count of the hetaeria commanded regular soldiers, these would have numbered eight decarchs and eighty common soldiers, paid a total of 816 nomismata more per archontate.[110] The pay of all these commanders who were not on the regular army payroll would have totaled 7,344 nomismata, with 2,784 nomismata more for the archons' staffs and soldiers.

There were also several military officials, called στρατάρχαι, who were not connected with the themes or tagmata and thus were off the military payroll. Most of these are listed in the *Tacticon Uspensky,* and Philotheus provides full lists of their subordinates. The pay scale of Table II permits a reconstruction of their payrolls that can at least reveal their order of magnitude. This group included the Protospatharius of the Hippodrome, who commanded the Imperials, an elite corps of guardsmen consisting of spatharii and candidati of the Hippodrome and imperial mandators.[111] These are evidently the same as the 400 sword-wielding men of the Hippodrome in the Emperor's service mentioned by Ibn Khurdādhbih.[112] Ibn Khurdādhbih's number suggests that the two companies of the spatharii and candidati, like the banda of the themes and tagmata, each numbered 200 men and had two mandators, so that there would have been four imperial mandators in all. In any event, since the spatharii, candidati, and imperial mandators all appear in the group in the *Tacticon* assigned pay of two pounds of gold, for purposes of calculating the payroll the distribution makes little difference. Their commander was paid twelve pounds.

The officers of the Imperial Fleet are also mentioned by Philotheus under the class of military officials. In 911/12 the 60 dromons of the Imperial Fleet carried, besides their oarsmen, 70 combatants apiece, for a total of 4,200.[113] This total indicates that the Fleet had about the same 4,000 soldiers (plus officers) as a tagma, and indeed Philotheus assigns it the same organization as a tagma, with topoteretae, a chartulary, counts, centarchs, a protomandator, mandators, and (anomalously) a count of the hetaeria.[114] The combatants were evidently the regular marines of the Imperial Fleet who, according to a novel of

Constantine VII that dates from between 945 and 959, had then had military lands as well as pay for some time.[115]

But such regular marines do not appear to have existed at the time of the *Tacticon Uspensky*, which not only fails to mention their topoteretae but gives the Drungary of the Imperial Fleet a rank below all the commanders of the regular tagmata, though in Philotheus the Drungary outranks the commanders of the Hicanati, Numera, Optimates and Walls.[116] Probably the Drungary of the Fleet acquired his higher rank, topoteretae, other subordinates of a tagma, and regular marines all at the same time, between 842/43 and 899. This change was evidently the naval reform, dated by Hélène Ahrweiler to the reign of Basil I or earlier in the reign of Leo VI, that made the Drungary into a figure of real importance.[117]

Before this time, the Imperial Fleet evidently served to transport other soldiers, perhaps from the tagmata, rather than its own marines. Since the number of its ships' officers and oarsmen in 842 is uncertain, they are best considered later, together with the rest of the Empire's naval establishment.[118] Aside from these men, about 842 the Drungary of the Fleet seems to have had under him only the "counts of the Fleet" mentioned in the *Tacticon Uspensky* (apparently the counts of Abydus and Hierum at the north and south entrances to the Straits) and probably a chartulary.[119]

The list of the staff of the Imperial Stable, headed by the Count of the Stable, has dropped out of our text of Philotheus, but a passage in a short treatise of Constantine VII not only supplies the list but gives the numbers of each kind of officer.[120] Philotheus does describe the staff of the metata, tracts in Asia and Phrygia that supplied the Imperial Stable with horses and mules for the tagmata. Except for their chief, the Logothete of the Herds, these officials appear to fall into twos, one each for Asia and for Phrygia.[121] Since some of these officials do not appear in the *Tacticon* or the longest list of Philotheus, their salaries can only be guessed at, but given that they had superiors with salaries of only one pound, their total pay must have been relatively inconsequential. The payroll of all these miscellaneous military officials is summarized in Table V. Though this table contains a good deal of guesswork, its total of 70,380 nomismata cannot be so far wrong as to make a major difference in the overall estimate of the military budget.

Besides the themes and tagmata, the Empire also had irregular troops, who are mentioned by Qudāmah.[122] These "troops," whose

absence from all rank lists and from Jarmī's remarks on pay implies that they were not paid, were probably no more than the local population organized as a militia for emergency defense. The rank lists do, however, mention some paid officials who look like commanders for the irregular troops. The archons of Dalmatia and Cyprus may well have commanded irregulars of this kind.[123] The paraphylaces of the castra are mentioned by Ibn Al-Faqīh as the commanders of residents of forts and appear in the part of Philotheus' treatise corresponding to the defective last part of the *Tacticon.* They, like the "drungaries of the foot," again mentioned in the section of Philotheus that completes the *Tacticon,* do not fit into the regular military command structure and seem therefore to have commanded irregulars.[124]

Both sorts of officer were in low pay grades, with the paraphlaces paid 36 nomismata and the drungaries of the foot only 18. The number of the paraphylaces can be estimated, because Ibn Khurdādhbih records that the twelve eastern themes and cleisurae and the territory of the Optimates together had 155 forts.[125] If the eight Western themes and Dalmatia and Cyprus had forts in roughly the same proportions, there would have been around 275 forts in the Empire, and 275 paraphylaces. If, as may well be the case, the drungaries of the foot were based in the forts, they might have numbered about 275, putting their pay and that of the paraphylaces at around 15,000 nomismata in all. Though this discussion of the irregular troops is highly conjectural, it at least suggests that their officers were not a major drain on the military budget.

So far the pay of the oarsmen of the Imperial Fleet and the thematic fleets has been omitted. According to the supplementary pay list in the *De Ceremoniis*, oarsmen were paid at the same rate as soldiers, and so presumably at an average of about nine nomismata a year.[126] According to Arab chroniclers, in 853 the Empire sent out three simultaneous naval expeditions with a total of nearly three hundred ships.[127] Because these seem to have been nearly the whole naval force of the Empire, three hundred ships is probably a good approximate total, including both the Imperial Fleet and the thematic fleets. The 177 ships of the expedition of 911/12 were manned by 34,110 oarsmen, an average of 193 oarsmen per ship.[128] At this rate, the about 300 ships that the Empire had in the mid-ninth century would have had some 60,000 oarsmen with a payroll of around 540,000 nomismata a year. The dromons among these three hundred ships would also have had centarchs and protocarabi, and only those of the Cibyrrhaeots would have

been on the regular military payroll. Of the 177 ships of 911/12, 102, or 58%, were dromons. At this proportion, there would have been some 175 dromons in 842, thirty of which would have belonged to the Cibyrrhaeots; the remaining 145 or so would have had about 435 officers with total pay of about 31,320 nomismata.[129]

Campaigns entailed additional pay. The unsuccessful expedition of 911/12 against Crete cost 239,138 nomismata in extra pay for 47,127 soldiers and oarsmen; the extra pay for another unsuccessful Cretan expedition in 949 totaled 249,478 nomismata. Both payrolls are itemized in the *De Ceremoniis.*[130] Such payrolls would not have been significantly increased by the bounty of one nomisma given to the deputati (medics) for each wounded soldier they rescued.[131] Qudāmah reports that the annual Arab expeditions against Byzantium, whether by land or sea, normally cost about 200,000 nomismata, but could cost as much as 300,000.[132] These Arab figures for the ninth century are so close to the Byzantine figures for the tenth that 250,000 nomismata seems a reasonable average for any full-scale land or sea campaign by either side in either century. But in Theodora's time campaigns were not annual events. During her fourteen years as regent six campaigns are recorded against the Arabs, four by sea and two by land, with a seventh against the Bulgarians.[133] Her expenditures on campaigns would therefore have averaged something like 125,000 nomismata yearly.

Though the sums mentioned thus far, all of them for pay, do not by any means represent the full measure of the Empire's resources devoted to defense under Theodora, they probably do represent nearly the whole portion spent in cash. That military pay was in cash is clear not only from its always being denominated in gold in the sources but also from its being raised by Michael III's melting down gold ornaments and paid in sacks in the ceremony witnessed by Liudprand. Payment in gold had the advantages of binding the recipient to the government he served by visible and durable remuneration and of giving him flexibility to buy whatever supplies and equipment he needed on the open market. Aside from pay, however, the government appears to have gone to great lengths to avoid spending cash on military supplies, equipment, or building.

Ibn Khurdādhbih reports that the Empire collected taxes in kind on grain which were put into granaries and used to provision the army.[134] This tax was evidently the source of the siteresia, the grain rations which were distributed monthly to the soldiers of the tagmata and to

certain other soldiers on campaigns.[135] In general, however, Ibn Khurdādhbih notes that the soldiers of the themes were required to bring along their own rations of biscuit, oil, wine, and cheese.[136] Arms for the tagmata were produced by the imperial factories, and mounts were obtained from taxes in kind on the metata of Asia Minor.[137] Otherwise the troops of both themes and tagmata were responsible for their own supplies, arms, and mounts, which they were expected to provide from either their military lands or their siteresia. On campaign, they could also have billeting in friendly territory and plunder in enemy territory.

Most military building and maintenance appears either to have been provided through corvée labor exacted from the civilian population or to have been done by the soldiers themselves.[138] Even the food, mounts, and equipment used on campaigns by the Emperor's immediate retinue were not paid for in cash, but exacted from various private citizens and even from imperial officials and monasteries, according to an old-established formula that Constantine VII says dated from long before Michael III's reign.[139] Admittedly, some cash was expended in the process of meeting all these needs. Constantine VII notes that extra equipment beyond what the imperial factories could supply had to be purchased for the Cretan expedition of 949, and itemizes it at length; it cost a total of 1,728 nomismata.[140] He also mentions that three pounds of gold (216 nomismata) had to be appropriated for the expenses of the imperial retinue during a campaign.[141] These are trifling sums. No doubt there were other small incidental expenditures for military purposes that the state was unable to avoid paying in cash. Though any estimate of these can only be a guess, there are no grounds for making that guess a high one. Fifty thousand nomismata a year would probably be of the right order of magnitude.

In sum, the total military expenditures other than the regular payroll of the army can be computed roughly as follows, combining estimates of varying reliability:

pay of commanders not on payroll	7,344
pay of archons' staffs and soldiers	2,784
pay of other military officials (see Table V)	70,380
pay of officers of irregular troops	15,000
pay of oarsmen of Imperial Fleet and themes	540,000
pay of ships' officers (excluding Cibyrrhaeots)	31,320

extra pay for campaigns (annual average)	125,000
miscellaneous supplies, building, and maintenance (annual average)	50,000
Total	841,828 nom.

Though no precision can be claimed for this figure, an estimate of 800,000 nomismata would probably be accurate within a margin of 100,000 nomismata either way. If this total is added to the estimate of 1.4 million nomismata for the regular military payroll, the total estimate for annual military expenditures would come to about 2.2 million nomismata.

Also relying on the figures of the Arab geographers, Stein put the military budget at two to three million nomismata at most, which is compatible with this estimate.[142] Curiously, relying on the same data, Bury put the military expenditures, excluding the cost of campaigns, at "probably a sum of more than £1,000,000"—meaning 1.67 million nomismata.[143] This estimate actually seems somewhat low, though Bury's overall estimate of the expenditures is far higher than Stein's. Bury therefore supposed that the military budget was only some 3.5% of the total. Even at the present estimate, it would be less than 5% of Bury's total, a proportion that is simply incredible for a state with the military problems of ninth-century Byzantium. Stein's estimate that the military budget was at least around half the total is far more plausible.

The Civil Service Payroll

If the preceding analysis is correct, Table II should provide the pay scale not only of military but also of civil officials. In a recent article, however, Paul Lemerle has come to conclusions about the pay of civil officials that seem incompatible with Table II. Lemerle cited a passage in the *De Ceremoniis* applying to the reign of Leo VI, which lists several titles of offices, the sums to be paid to the Emperor in order to receive them, and the salaries obtained as a result. Lemerle relied particularly on this entry: "He who wishes to be in the Megale Hetaeria (Great Bodyguard), if his salary is up to 40 nomismata, pays 16 pounds [1,152 nomismata]; if he seeks a higher salary, in proportion (*κατὰ ἀναλογίαν*) to the salary the payment should also rise, that is (*ἤγουν*), at seven nomismata [of salary] for one pound [72 nomismata]."[144] Lemerle postulated a system under which imperial officials determined

their own salaries by making larger or smaller payments to the Emperor, the salary being a sort of annual interest on the initial payment—in this case, 3.47% on the minimum payment and 9.72% on additional payments.

If Lemerle's analysis is applied to the civil officials mentioned in the passage he cites, we find that an asecretis (secretary) paid a minimum of 864 nomismata to receive a salary of 30 nomismata, and an imperial notary or a cubicularius (chamberlain) paid a minimum of 576 nomismata to receive a salary of 20 nomismata; higher salaries could be obtained by higher payments "in proportion."[145] Lemerle suggests that here "in proportion" (again κατὰ ἀναλογίαν) means the same proportion as for a member of the Great Bodyguard, or 9.72%.[146] Under this hypothetical system, an asecretis *could* have received the salary of 144 nomismata assigned him in Table II, by making an initial payment of some 2,037 nomismata; but depending upon what he paid he could as easily have received any other salary above 30 nomismata.

Leaving Table II aside, however, Lemerle's conclusions present some serious problems if they are taken to apply to the entire Byzantine bureaucracy. To begin with, the initial payments are extremely high. Byzantine law counted a man as rich if he had a total of 144 nomismata of property.[147] Only the very rich could have accumulated enough capital to pay even the minimum price for an office. Further, such offices would have been extremely poor investments, much poorer than Lemerle's percentages reveal. An asecretis who paid the minimum amount would have made back his lost capital only after he had drawn his salary for 29 years; after thirty years, he would have earned the equivalent of about 0.14% annual interest.

Further, Lemerle is probably mistaken that the higher salaries obtained "in proportion" to higher payments were in the proportion of seven nomismata to the pound. The phrase "in proportion" (again κατὰ ἀναλογίαν) appears seven other times in the passage without any gloss, implying that the proportion was the same as that between the minimum payments and salaries. In the case of the Great Bodyguard, the phrase ἤγουν τὰ ζ′ νομίσματα λίτραν α′ looks like an interpolation by someone with defective arithmetic. The *De Administrando Imperio* records a case of a cleric who tried to purchase the rank of imperial protospatharius, for which the minimum payment with a salary was 16 pounds, for 40 pounds, thereby obtaining a salary of one pound. This was an even more unfavorable rate than that for a member of the Great Bodyguard at the minimum payment, though

slightly better than that for a member of the Middle Bodyguard at the minimum payment of 10 pounds (720 nomismata) for a salary of 20 nomismata.[148]

But even if the gloss is correct and the purchaser of the office of asecretis paid the immense sum needed to receive an annual salary of 144 nomismata, that of a middle-ranking army officer, he would have earned back his lost capital only after fourteen years, and after twenty years received the equivalent of only about 2.07% annual interest. If he died before making back his capital, as many if not most purchasers would have done, his heirs would have lost money and the government would have gained. Though he would have received an annual donative of perhaps three-quarters of a nomisma at the Brumalia, this was a trifling sum.[149] Since he kept imperial records and seldom served the public directly, an asecretis, like an imperial bodyguard, could not have collected any important fees, and indeed the sources give no indication that such officials did collect fees in this period. That the Empire could have staffed its entire central bureaucracy with men so rich that they could make such high payments for such a poor return seems extremely unlikely.

The clue to the truth of the matter is that these titles of offices appear among a number of titles of dignities to which no duties were attached. Most of these dignities had been titles of offices at an earlier date, and bodyguards and cubicularii could also be purely titular officials.[150] In fact, the passage cited from the *De Ceremoniis* appears to describe an occasional practice by which the Emperor sold dignities or purely titular offices to a few wealthy buyers who wanted prestige. Such purely titular officials, called by a variety of names, had nothing to do with the real officials who actually ran the government.[151] It is to the latter that the pay scale of Table II applies.

The numbers and salaries of the titular officials would have varied somewhat depending upon the desire of the wealthy for prestige, but since they must always have been few and made payments that on average at least covered their salaries, their pay can be ignored as an expenditure here. But the payroll of the real officials must have been an important budgetary item. This payroll cannot be calculated with the same degree of accuracy as the military payroll, because no totals for the number of officials or the amount of the payroll have survived as such. The following reconstruction is therefore highly conjectural, and includes some estimates that are more or less arbitrary, though none that is likely to be wrong by a whole order of magnitude.

The best available starting point for determining the numbers and pay of the central bureaucracy is the section of the treatise of Philotheus that lists the subordinates of all major imperial officials. Of these officia or bureaux, the subordinates of the military commanders and the other military officials have already been considered, the bureau of the Curator of the Mangana did not yet exist under Theodora, and the bureaux of the Chartulary of the Inkwell, Protostrator, Master of Ceremonies, and Demarchs belonged to different categories and will be considered later.[152] The remaining thirteen departments constituted the central bureaucracy in the strict sense, headed by the officials whom Philotheus calls magistrates (κριταί) and secretaries (σεκρετικοί), and these are listed in Table VI. A brief description of their functions will suffice here.[153]

The three magistrates were independent of the secretarial departments. They were the City Prefect, who administered Constantinople, the Quaestor, who headed the judiciary and drafted laws, and the Minister for Petitions, who handled petitions submitted to the Emperor. The central administrative departments were headed by nine secretaries under the supervision of a tenth, the Sacellarius, a general controller. The most important administrators were the General Logothete, in charge of raising cash revenues, the Military Logothete, in charge of paying the army and navy, and the Logothete of the Drome, who supervised the post and roads, and with them diplomacy and internal security. There were two treasurers: the Chartulary of the Sacellium, who handled cash and anomalously supervised most of the imperial charitable institutions, and the Chartulary of the Vestiarium, who handled objects other than cash, and thus supervised the imperial mint and arsenal. Records were the responsibility of the Protoasecretis, who had subordinates of his own as well as some jurisdiction over record-keepers in other departments. Three officials administered certain state establishments: the Special Secretary the imperial factories, the Great Curator the outlying imperial palaces and estates, and the Orphanotrophus the imperial orphanages of the capital. Such was the central bureaucracy of the Byzantine Empire.

The pay scale of this bureaucracy can be largely determined by means of the comparison of Jarmī's data with the Byzantine precedence lists as presented in Table II. Since some of the officials listed in the officia do not appear in the main precedence lists, Table II cannot supply their salaries. But when the salaries indicated by Table II are supplied for the relevant officials in the lists of officia, they too are

precisely in order from highest to lowest, indicating that the officia lists are also in order of precedence of rank and salary. This fact makes it possible to deduce the salaries of almost all officials in the officia. The ten remaining salaries that cannot be determined with certainty can be guessed within narrow limits; the guesses are indicated by question marks among the salaries listed in the third column of Table VI.

The central bureaucracy certainly numbered hundreds rather than thousands. The considerably larger and richer Empire of the fifth and sixth centuries had a corps of thirty notaries in the West, 130 secretaries in the East, 224 to 446 officials of the public treasury in the East, and 300 officials of the imperial treasury in the West.[154] In 950, Constantine VII needed only twelve hours to pay individually every official in the capital with a salary of 72 nomismata or more, including military, palatine, and titular officials.[155] Given the exigencies of court ceremonial (Liudprand's account implies that each name, title, office, and salary was read off aloud before a payment was made), Constantine can hardly have paid the officials at a rate much faster than two a minute, which would imply a total of about 1,500 men. With about 550 of these being military officials and the palatine and titular officials together probably comparable in number, the central bureaucracy might thus have had about 500 officials earning 72 nomismata or more.[156] Liudprand says that the Paracoemomenus took all Holy Week to pay the government employees who earned less than 72 nomismata apiece, but he does not specify how many hours were spent in doing the paying; the number of days was presumably four, with no payments on Palm Sunday, Good Friday, or Holy Saturday. Supposing that these employees were paid with a minimum of ceremony, the Paracoemomenus might have worked at twice the daily rate of the Emperor, and paid some 4,000 people.

Fortunately, these very rough estimates can be checked and completed to a great extent by filling in the numbers of the officials in Philotheus' lists that can be discovered, deduced, or guessed from several sources. Many present no problem: 46 of the 100 kinds of officials in the officia are listed in the singular, two kinds (the chartularies of the themes and tagmata) have already been considered, and another kind (the notaries of the Protoasecretis) are repeated from entries in other departments.

For the rest, one important source is the part of Philotheus' treatise that contains guest lists for the Emperor's banquets. Many of these lists give the numbers of groups of officials who were invited. For example,

on the seventh day of Christmas, the Emperor invited twelve high dignitaries to the Imperial table, including the Prefect of the City and the Drungary of the Fleet, plus 204 subordinates of these two officials.[157] The numbers of the officers of the Fleet can easily be deduced on the assumption that in 899 they were parallel to those of a tagma of 4,000 men.[158] The numbers of three kinds of subordinates of the City Prefect are mentioned in a guest list for a banquet on Easter Saturday, which notes that the Prefect had twelve geitoniarchs, four epoptae, and two protocancellarii.[159] From the fact that there were twelve geitoniarchs, who governed the regions of Constantinople, it can be conjectured that there were also twelve judges of the regions. Counting officials mentioned in the singular as one each, only one group of officials has no number: the Prefect's cancellarii. The number of these can presumably be deduced by subtracting the other numbers from 204.

The list would therefore be as follows, including the numbers:

symponus	1
logothete of the Praetorium	1
topoteretae of the Fleet	2
chartulary of the Fleet	1
counts of the Fleet	20
centarchs of the Fleet	100
judges of the regions	12
epoptae of the City	4
geitoniarchs	12
legatarius of the Praetorium	1
centurion	1
protocancellarii	2
cancellarii	[6]
mandators of the Fleet (with protomandator)	41
Total	204

Thus the cancellarii of the Prefect of the City appear to have been six.

The guest lists for the first and ninth days of the Christmas banquets present a more difficult problem. In both cases, the guests included "the entire senate with the boot (*υπο καμπαγιν*)," defined as the asecretae, chartularies of the Great Secreta (i.e., of the General and Military logothetes), and imperial notaries of the Great Secreta (i.e., of the Sacellium, Vestiarium, and Special Treasury).[160] On the first day,

these are included in a group of 168 guests, also including the 20 counts and 40 standard-bearers of the Schools and some men with the dignities of consul, biconsul, and silentiary. Subtracting the 60 officers of the Schools, we have 108 places for the three classes of secretarial senators "with the boot" and the three classes of dignitaries.

Though the former are explicitly said to be *all* the booted secretarial senators, the latter were evidently a selection, because their dignities were bestowed at the Emperor's pleasure in variable numbers.[161] In other cases in which selections were made from certain groups for these banquets, including high dignitaries, Bulgarians, poor men, and abbots, the selection usually numbered twelve, the number who could be accommodated at one table. If this practice was followed for the consuls, biconsuls, and silentiaries, they would have numbered 36, leaving 72 places for the three classes of secretaries. It is tempting to divide these 72 evenly among the three classes of asecretae, chartularies, and notaries, making 24 each, and then to divide the 24 chartularies into 12 for each of their two bureaux and the 24 notaries into 8 for each of their three bureaux. Given the Byzantines' mania for symmetry in numbers of officials and salaries, this distribution may well be exactly right; it cannot be very far wrong. In any case, since all these officials would have had salaries of 144 nomismata according to Table II, their distribution would not have any effect on the total payroll.

The numbers of officials with certain jurisdictions can be deduced from the numbers of the jurisdictions. For example, in the officium of the City Prefect the exarchs and prostatae were the heads of guilds. Since 21 guilds are listed in the *Book of the Prefect,* the exarchs and prostatae together presumably numbered 21.[162] Of the other subordinates of the Prefect, the nomici or City notaries were assigned to the regions of Constantinople, and so probably were the episceptetae (inspectors) and the bulotae, who marked weights, measures, and goods with the Prefect's seal.[163] Since only 12 of the 14 regions had geitoniarchs, we might suppose that there were also 12 nomici, episceptetae, and bulotae. The Sacellarius had one notary for each of the nine bureaux under him.[164] In the officium of the General Logothete, there were doubtless epoptae (inspectors) of the themes for each theme and cleisura and probably for the archontates of Dalmatia and Cyprus as well, making a total of 23 epoptae of the themes in 842. This was probably also the number of the chartularies of the arclae, who dealt with the provinces and were apparently assigned specific themes, since a seal reveals one who also served as protonotarius of the Anatolics.[165]

The commerciarii and dioecetae, who collected trade duties and taxes in the provinces and took a share of what they collected instead of a regular salary, will be considered among the provincial officials.

In the officium of the Military Logothete we find optiones (paymasters) of the themes and tagmata, who at one for each unit would have numbered 28 in 842. In the same officium were legatarii and mandators, no doubt used to communicate with the themes and tagmata; the titles appear to have commanded the same salary and to have been more or less interchangeable, because the messengers of the tagmata, numbering two per bandum, were called indifferently by both names.[166] On the principle that messengers were assigned in twos, like those of the banda of the themes and tagmata, so that one could be sent and the other kept in reserve, the Military Logothete would have had 56 messengers, whether legatarii or mandators, two for each theme or tagma. Though this method of estimating may be wrong, it gives a number that is plausible and in any case concerns officials who were so poorly paid that they make little difference for the total payroll.

By the same token, the Logothete of the Drome might have had 46 mandators, two for each of the 23 provinces. He almost certainly had one chartulary and one episceptetes for each province, because seals attest a Chartulary of the Drome of Thrace and an Episceptetes of Seleucia.[167] As for the diatrechontes or couriers, the *De Ceremoniis* mentions one's being sent to summon the City Prefect and another's being sent to summon the Quaestor, circumstances which suggest that there may have been two diatrechontes for each of the twelve bureaux apart from that of the Logothete of the Drome himself.[168] Again, if this estimate is wrong the consequences would be unimportant.

In the officium of the Chartulary of the Sacellium, the protonotarii of the themes certainly would have numbered 23.[169] The xenodochi and gerocomi were heads of the imperial hospitals and homes for the aged. Though there were many charitable institutions in and around Constantinople, there were only six imperial xenodochi and two imperial gerocomi who took part in ceremonies described in the *De Ceremoniis,* and these were probably the only ones who were subordinates of the Chartulary of the Sacellium.[170] It follows that there were also eight chartularies of the charitable houses, one for each institution.[171]

In the officium of the Chartulary of the Vestiarium we find an Archon of the Mint and an Exartistes of the imperial arsenal, the two heads of the Vestiarium's two divisions. We might also guess that this officium included two curators and two chosbaitae (treasurers?), one

each for the mint and for the arsenal, and four mandators.[172] Similarly, the Special Secretary had two subordinates to head his department's two establishments: the Archon of the Armamentum, assisted by a chartulary, to run the arms factory and the Chrysoepsetes to run the gold-smelter. This officium might therefore have had two hebdomarii (custodians) and two meizoteri (overseers), one for each.[173]

As for the Great Curator, his curators of the palaces would have been equal in number to the imperial palaces themselves—apart from the Great Palace, which had an independent staff, and the Palace of Eleutherius, which had a Meizoterus who is listed separately. Besides these, eight imperial palaces are attested for this time: Blachernae, Sophiae, Hormisdas, St. Mamas, Pege, Philopatium, Bryas, and Hieria; this list seems likely to be more or less complete.[174] The curators of the estates would have been equal in number to the imperial estates. In this period, curators of estates of Cromna, Athens, Chios, and Tzurulum are attested, along with a single "Curator of the Estate" who probably supervised the imperial land within the Long Walls referred to by Ibn Al-Faqīh.[175] Though this list may very well be incomplete, imperial estates seem to have been very few in the mid-ninth century.[176] Counting nine palaces (with Eleutherius), five estates, and three hospices, the Curator would have controlled 17 establishments, and probably had one episceptetes to inspect each of them.

The numbers of some other officials can be estimated, at least approximately, by analogy. We have seen that the City Prefect had only six cancellarii (clerks). Since he outranked all the other heads of bureaucratic departments and seems to have had an officium about as large as any, the other departments probably had no more cancellarii; some major departments, like that of the Military Logothete, Logothete of the Drome, and Chartulary of the Vestiarium, had none at all. We might therefore assign six cancellarii to the Quaestor, Minister for Petitions, General Logothete, and Chartulary of the Sacellium without fear of making a significant error, essentially because cancellarii were wretchedly paid.[177] On the basis of the guest-lists of Philotheus, eight imperial notaries of the Great Secreta have already been conjectured for each of the officia of the chartularies of the Sacellium and Vestiarium and of the Special Secretary; we might assign eight imperial notaries to the officium of the Great Curator by analogy.

Bury deduced from a phrase in the *De Ceremoniis* that there were two antigrapheis in the officium of the Quaestor.[178] For five remaining types of officials in four officia we are reduced to more or less arbitrary

guessing. The General Logothete's counts of the waters are supposed to have had something to do with aqueducts.[179] The metretae of the Chartulary of the Sacellium supposedly dealt with weights and measures.[180] The chartularies of the House (of St. Paul) and the chartularies of the (House of) Hosius (Zoticus) may be in the plural through a textual corruption, because one chartulary would seem to be enough for each institution under the Orphanotrophus.[181] I have arbitrarily postulated two of each of these four kinds of officials, avoiding changing the text. Finally, the Logothete of the Drome's officium included hermeneutae (interpreters). Nothing is known of their number except that both an Armenian and an Arabic interpreter are attested.[182] A rough guess might put the total number of hermeneutae at a dozen.

All these numbers for officials appear in the second column of Table VI, with the guesses indicated by question marks. Though many individual numbers in this table are open to question and correction, the overall picture they present is probably reasonably accurate. Of course, the total figures are far from exact: 605 officials (337 earning 72 nomismata or more) with a total payroll of 56,736 nomismata. These numbers are only guidelines. At any one time a few offices would have been vacant; one man sometimes held more than one office, though then he would presumably have drawn each salary to which he was entitled. The numbers toward the bottom of the pay scale are particularly conjectural: there may well have been somewhat more or fewer cancellarii, episceptetae, legatarii, diatrechontes, or mandators than are indicated here. But unless there were hundreds more the effect on the total payroll would be slight. Evidently it was around 55,000 nomismata a year.

Of course, this total omits the officials of the Demes, the Court, and the provinces, as well as workmen in the palaces, factories, estates, and charitable institutions. The data are insufficient to permit an itemized reconstruction of payrolls for any of these, except possibly the Demes, who are included in the officia listed by Philotheus. By this time, as Alan Cameron has shown, the two Demes of the Blues and Greens had put their days as disorderly circus fans long behind them and were paid officials of the state, with major roles in court ceremonial and the races of the Hippodrome.[183] Each Deme had a demarch, paid 216 nomismata, a deuteron (assistant), paid 144 nomismata, eight sorts of subordinate officials, paid 36 nomismata each, and demotae or enrolled members, paid 18 nomismata each. Probably each Deme had only one of each sort of official except for the four charioteers and the

leadership (protia), of indeterminate but presumably small number. There were also a handful of Hippodrome officials independent of the Demes, no doubt few and poorly paid except for their head, the Actuarius, whose salary was 144 nomismata.[184]

The pay of all other officials of the Demes and the Hippodrome was apparently insignificant in comparison with that of the demotae, for whose numbers only one accounting has survived: 900 Blues and 1,500 Greens in the year 602.[185] This number is not likely to have grown much during the disastrous seventh and eighth centuries, and may even have decreased. If there were about 2,400 members of the Demes in the ninth century, their payroll would have been around 43,000 nomismata. The 2,000 to 3,000 nomismata paid to the higher officials of the Demes and Hippodrome would be considerably less than the ample margin for error of this estimate.

For the officials of the Court we have neither a pay scale nor precise numbers. There were evidently a few hundred of them in all. On the basis of Philotheus' treatise Bury lists 38 sorts of eunuchs of the Palace, 17 of them unique officials; but none of them is included in a guest list that might show their number or in a comprehensive rank list that might show their pay.[186] The rank lists do include the dignities of eunuchs, which rank relatively high. Although we have seen that salaries were probably not attached to dignities as such, the position of the eunuchs' dignities in the lists suggests that their salaries were comparable to those of other high officials.[187]

Among the officials of the Court we should count the Rector, who earned at least 2,880 nomismata;[188] the Chartulary of the Inkwell, the Emperor's private secretary who earned 432 nomismata;[189] the Protostrator, the Emperor's chief groom who earned 432 nomismata and had an officium of his own with three sorts of officials;[190] and the Master of Ceremonies, who earned 216 nomismata, though his officium was evidently a sham one, consisting of dignitaries rather than officials.[191] Thus the kinds of Court officials totaled 45 in all, compared to almost a hundred kinds of bureaucratic officials listed in Table VI. A rough guess might put the pay of all the Court officials at about half that of the bureaucracy, around 25,000 nomismata a year.

Further, many menial workers were employed in Constantinople in the Great Palace, where they served both the Court and the bureaucracy, and in other palaces, hospices, orphanages, homes for the aged, and factories, the arsenal, and the mint. Their ordinary pay was probably 18 nomismata, the lowest living wage on the government's pay

scale and approximately the average for manual laborers in general.[192] These workers would be included among the perhaps 4,000 employees making less than 72 nomismata who were paid by the Paracoemomenus during Holy Week, along with some 300 low-ranking members of the bureaucracy, the low-ranking members of the Court, and the about 2,400 members of the Demes. The pay of the manual laborers might therefore be guessed at around 25,000 nomismata a year, a figure that is useful only as an order of magnitude. No doubt there were also imperial slaves, but since they would have been paid nothing and their room and board would have been supplied in kind, they fall outside the limits of the present discussion.

The pay of the civil officials in the provinces is also difficult to estimate. Various officials who dealt with the provinces and probably spent most of their time there have already been considered as part of the central bureaucracy: the chartularies of the arclae and the epoptae of the General Logothete; the legatarii, optiones, and mandators of the Military Logothete; the chartularies, episceptetae, and mandators of the Logothete of the Drome; and the protonotarii of the themes of the Chartulary of the Sacellium. Besides these, the chartularies, protocancellarii, and protomandators of the strategi probably handled some civil as well as military matters.

In 842 the themes still had certain high civil officials, the proconsuls and prefects of the themes, who were civil governors with salaries of 864 nomismata each, and the praetors of the themes, who were judges with salaries of 432 nomismata each. Each province had one proconsul or prefect and one praetor.[193] Therefore the proconsuls, prefects, and praetors of the 23 provinces of 842 would have been paid a total of 29,808 nomismata. If each province had, like the Prefect of the City, six cancellarii earning 18 nomismata each, this would have brought the total to 32,292 nomismata. No other civil officials attached to the provinces seem to appear in the sources for this period. Thus about 35,000 nomismata a year would have gone to these provincial officials.

Finally, we must consider the provincial tax officials, the commerciarii, dioecetae, and practors, who took their own pay from their receipts at a fixed and recorded rate. Though for purposes of estimating a good case could be made for omitting the share of the taxes kept by the tax collectors from both expenditures and revenues, it ought probably to be included simply because it was in cash and on the government's books. As will appear, my estimate for revenues implies

a share of approximately 250,000 nomismata for the dioecetae and practors, and perhaps 15,000 nomismata for the commerciarii.[194] As for other workers in the service of the state—in mines, on estates, on roads, and the like—virtually all of them would have been subjects doing corvée labor, soldiers, or imperial slaves receiving only payment in kind.[195] Such items were outside the cash budget.

The estimates presented here for the pay of the civil service may be summed up as follows, using round numbers:

central bureaucracy	55,000
Demes	45,000
officials of the Court	25,000
menial workers in Constantinople	25,000
provincial officials	35,000
dioecetae and practors	250,000
commerciarii	15,000
Total	450,000 nom.

Despite all the imprecisions involved, an estimate of 500,000 nomismata a year for the pay of all non-military government employees would probably be correct within a margin of 100,000 nomismata either way.

Other Non-Military Expenditures

Apart from pay, the Empire's non-military expenditures were for the building and maintenance of palaces, public buildings, and roads, and for donatives, ceremonies, games, charity, and the post, which included diplomacy and tribute. Theodora seems to have kept all such expenses to a minimum. Though the sources for her regency are of comparable fullness to those for the preceding reign of Theophilus and the subsequent rule of Michael III, and both other rulers are said to have made substantial expenditures on buildings and donatives on a number of occasions, none are mentioned for Theodora.

She did restore at least some icons after 843, which would have involved some modest outlay.[196] About 844 her co-regent Theoctistus built an elaborate palace for himself, possibly at public expense.[197] Theodora no doubt paid the donatives to officials which Philotheus describes as customary at the holidays of the Brumalia and the anniversary of the Emperor's coronation; these donatives varied, but do

not seem likely to have exceeded a few thousand nomismata a year.[198] Possibly Theodora continued Theophilus' practice of distributing 7,200 nomismata every Christmas to the clergy of Constantinople.[199] She is not known to have paid tribute to any foreign power.

We have already seen in the discussion of miscellaneous military expenditures that the Empire went to great lengths not to spend cash for its needs apart from payrolls, and relied instead on requisitions in kind and its own establishments whenever it could. The rule evidently held good for non-military expenditure. Repairs and routine services were performed by slave and corvée labor. Raw materials were supplied by taxation in kind and by the imperial estates, and manufactured goods by the imperial factories. Basil I is credited by Constantine VII with having arranged for even the materials for imperial banquets to be supplied from the produce of imperial estates.[200]

Under such circumstances, and especially during the rule of a highly economical sovereign like Theodora, cash expenditures could have been kept very low. Still, they cannot have been avoided altogether; there must have been many occasions in a year when only goods and services from the private market could be obtained or suited the purpose, and no established tax in kind could procure them. Certainly the Court and the rest of the government sometimes imported goods from outside the Empire, such as slaves from the North or spices and silks from the East, and paid for these in cash. Theodora's non-military expenditures apart from pay would consequently have been a noticeable, though small, part of the budget. A reasonable guess might put them at around 100,000 nomismata annually.

Conclusion

The sum of all these estimates for expenditures, which appear in the second part of Table VII, is about 2.8 million nomismata. Taking the surplus of some half a million into account, this estimate implies a total revenue of around 3.3 million, one-fourteenth to one-fifteenth of Bury's figure, and little more than half the maximum allowed by Stein. The present estimate, however, fits very well with Stein's estimate that the Empire's budget was about seven million nomismata in the sixth century, when the Empire was more than twice as large, and presumably more than twice as populous and rich.[201] The present estimate also seems fully compatible with our figure of 500,000 old nomismata for Andronicus II's revenue in 1321; at a third the size, Andronicus'

Empire would have been proportionally half as rich as the ninth-century Empire.

Admittedly, the estimate of 2.8 million nomismata of expenditures cannot be considered a precise and reliable figure. It is a sum of the four approximate figures given in Table VII, each of which is rounded to the nearest 100,000 nomismata, so that simply compounding the rounding and allowing for twice that margin would suggest a range between 2.4 and 3.2 million. This range corresponds fairly well to the amount of guesswork involved for all the figures except that for the payroll of the army, which is however rounded down from 1.44 million to 1.4. The estimates for expenditures apart from pay, which are based on less evidence, could be wrong by more than 100,000 nomismata if the government paid cash on a larger scale than has been assumed here. But the fact that when cash ran low Michael III had to melt down the gold ornaments of the Palace specifically to meet the army payroll, rather than some other expense, points to that payroll as the Empire's most important expenditure. That Theodora's expenditures ever exceeded Stein's maximum of six million nomismata a year seems inconceivable.

Stein based his estimate on an attempt to reconstruct an itemized budget of expenditures, at least for the sixth century. Bury merely observed, "It is impossible to conjecture how the expenditure was apportioned."[202] Bury thus avoided attempting calculations that in his highly competent hands would surely have revealed that his estimated revenue of 45 to 50 million nomismata was impossibly high, and would probably have led him to a conclusion compatible with Stein's.

Revenues

The direct evidence for the size of the Empire's revenues is extremely poor. They can only be estimated on the basis of modern estimates of the Empire's population and the size of Byzantine farms whose precision is low and whose reliability is challenged. In the present state of our knowledge, an independent estimate of the revenues with even the precision and reliability of the estimates made here for the expenditures seems unattainable. Attempting an independent estimate of the revenues is useful only to make a rough check on the estimate of expenditures—particularly to show whether the amount of revenue needed to meet those expenditures could plausibly have been raised—

and secondarily to make a rough check on the modern estimates of Byzantine population and land holdings that are in dispute.

Hearth and Land Taxes

The sources give the strong impression that the bulk of Byzantine state revenue came from the land tax and hearth tax. This conclusion also follows naturally from the primarily agricultural character of the Byzantine economy, and modern authorities generally agree on the primary importance of these two taxes. The approximate rate of the land and hearth taxes in the ninth century can be determined. The really serious problem is to arrive at estimates for the number of households and the area of cultivated land, so as to be able to estimate the revenue that these taxes could produce.

Ibn Khurdādhbih reports the principal tax rates. According to him, about 842 the land tax was three nomismata for 200 modii of land, and the hearth tax was six miliaresia, or half a nomisma, per hearth. Ibn Khurdādhbih also mentions taxes in kind, which do not concern us here.[203] By drawing a distinction between the taxes in kind and the hearth and land taxes, and by expressing the amounts of the latter in coins, he indicates that the land and hearth taxes were to be collected in cash.

Commutation of these taxes to payments in kind was evidently not allowed. In 767, a shortage of gold forced farmers to sell their produce for as little as a fifth of the normal price in order to obtain the money to pay their taxes—a situation that could never have arisen if payment in kind had been acceptable.[204] In the early eleventh century, Basil II did exceptionally allow the newly-conquered Bulgarians to pay their taxes entirely in kind, as they had done before the conquest; but in 1040 the government withdrew this privilege and demanded the Bulgarians pay the usual taxes in cash, crushing a Bulgarian revolt that followed as a result.[205] This exception seems to prove the rule that the Byzantines paid their land and hearth taxes in cash. No exceptions are recorded in the eighth and ninth centuries.

Ibn Khurdādhbih's account of the tax rates is for the most part supported by later Byzantine sources. The rate he quotes for the land tax amounts to one nomisma for 66 2/3 modii of land. A tax table of the thirteenth century, when the nomisma was worth 25% less than in the ninth, quotes the following rates:

first class arable	48 mod./nom. (64 mod./old nom.)
second class arable	100 mod./nom. (133 1/3 mod./old nom.)
irrigated first class arable	36 mod./nom. (48 mod./old nom.)
irrigated second class arable	40 mod./nom. (53 1/3 mod./old nom.)
olive trees	30 trees/nom. (40 trees/old nom.)[206]

A fourteenth-century tax table gives the following rates:

arable (probably first class)	50 mod./nom. (66 2/3 mod./old nom.)
vineyard or garden	6 mod./nom. (8 mod./old nom.)[207]

Note that the fourteenth-century table gives exactly the same rate for arable land as Ibn Khurdādhbih, while the thirteenth-century table gives practically the same rate for first class arable without irrigation. The rate for first class arable appears to have been the basic rate for all periods. It was probably close to being the real average for all land, because vineyards, gardens, and olive orchards, which were valuable but comparatively very small in area, would have offset the second class arable, which was less valuable but far more extensive.

A table of the year 1073 lists the following rates for the hearth tax, probably still in old nomismata:

hearth without oxen	1/3 nom. (4 miliaresia)
hearth with one ox	1/2 nom. (6 miliaresia)
hearth with two to four oxen	1 nom. (12 miliaresia)[208]

Thus Ibn Khurdādhbih's rate for the hearth is equal to that for a hearth with one ox in the eleventh-century table. A hearth with one ox was probably the average household, with households with more oxen being offset by those without an ox.

Perhaps in the mid-ninth century the land tax and hearth tax were uniform at the rates reported by Ibn Khurdādhbih, while later they were differentiated according to the quality of land and the number of oxen the family possessed. Alternatively, Ibn Khurdādhbih may have reported only the rates for ordinary land—first class arable—and for an average household—that with one ox—without going into the finer points of the tax system.[209] As elsewhere, he may have been summarizing a more detailed description given by Al-Jarmī. In either case, the rates he quotes are good enough for purposes of a rough estimate.

After the land tax and hearth tax were computed, they were added together and subjected to four proportional surcharges. These were theoretically as follows:

dikeraton	1/12 (8.3%)
hexafollon	1/48 (2.1%)
synetheia	1/12 (8.3%)
elatikon	1/24 (4.2%)
Total	11/48 (22.9%)

In practice, however, the surcharges were applied according to formulas that lowered the rates somewhat for certain taxpayers, particularly the wealthiest. For purposes of an overall estimate, we may figure the rate of the surcharges at about 20%.[210]

But how can we determine how much farmland there was and how many rural households there were? Though the Byzantine government kept cadasters with this information, as Ibn Khurdādhbih notes, no comprehensive figures for the Empire's farmland or population have survived from any Byzantine period.[211] Someday archeological techniques may make it possible to compare the extent of Byzantine settlement and cultivation in certain areas with those of the present day and thus to estimate the Byzantine totals scientifically. In the meantime, certain scholars have made estimates of the Empire's population and the average size of Byzantine farms on the basis of literary and documentary sources and comparisons with other times and places. Calculations of Byzantine tax revenue based on such estimates obviously have very high margins for error. Still, if the revenues thus computed are far too high or far too low to agree with expenditures of 2.4 to 3.2 million nomismata, at least one of the estimates has gone seriously astray. If the totals agree, even very roughly, none of the estimates is probably wrong by a whole order of magnitude.

For the Empire's population, the disagreement is less about conflicting totals than about whether any useful estimate can be made at all. Some argue that the only admissible estimate would be one based on specific evidence from the Byzantine period, and this is plainly insufficient for the task.[212] The only recent estimate by a specialist, that of J. C. Russell, is mostly based on comparisons with periods for which the evidence is better. In his comprehensive survey of late ancient and medieval population, Russell estimated the population of Asia Minor in 800 at about eight million, and that of Greece at about two million at the same date. He assigned Italy at that time a population of around four million, and put the populations of these areas in 1000 only a little higher.[213] Since the Empire controlled only a part of Greece in the mid-ninth century, together with a few parts of South Italy and Sicily,

Russell's estimates would translate into a population of around ten million for Theodora's Empire. Russell used a multiplier of 3.8 people to the hearth, which, allowing for some urban population, would mean about 2.5 million rural hearths for Theodora to tax.[214]

This last figure is probably less disputable than the figure for population, because Russell has been criticized for minimizing all premodern populations by using a low multiplier for the hearth. N.J.G. Pounds would put the hearth at five people, so that an estimate of 2.5 million rural hearths might mean a total population as large as thirteen million.[215] Though Colin McEvedy and Richard Jones give estimates in their survey of world population history that imply a population of about eight million for the Empire in 800, their figures appear somewhat too low.[216] On the other hand, Ernst Stein probably erred in the opposite direction when he guessed that the Empire had about twenty million people in the mid-eleventh century. Though by then natural population growth and expansion of imperial territory since the ninth century would have brought a substantial increase, the total can hardly have exceeded that for the more urbanized and prosperous Asia Minor and Greece of the time of Augustus; the latter total was about sixteen million according to the estimate of K. J. Beloch.[217]

Relying on fairly complete Ottoman census materials, Russell put the population of the whole Balkans at five million and of Asia Minor at only six million about 1500, when at least the Anatolian population seems to have been lower than in the ninth century.[218] Finally, the Turkish agricultural census of 1950, probably the most reliable survey ever made of Anatolia and Eastern Thrace, is an indication of some significance, because despite the substantial growth of the Turkish cities the rural population of 1950 was probably similar in size to that of the ninth-century Byzantine Empire, which included about the same quantity and quality of land as modern Turkey. According to this census, Turkey had 2,527,800 rural households in 1950.[219] Though obviously the estimate of 2.5 million rural households that follows from Russell's work is only an approximate guide, as such it seems a good deal better than nothing.

The average size of the Byzantine farm is a subject of some dispute. According to Nicolas Svoronos, the holding of a family with one ox, the household that appears to have been the average one, varied between about 75 and 150 modii, with the average being some 100 modii or 8 hectares. Svoronos' estimate is largely based on a document indicating that in 1301 the households on the lands of the Monastery of

Hiberon on Mount Athos farmed an average of 132 modii each, or 10.5 hectares.[220] In partial support of Svoronos, Erich Schilbach has recently found that 144 modii was the official figure for a holding of a farmer with *two* oxen, with the average of five examples being 147.5 modii; the official figure would apply to the whole Empire, though the holding for a farmer with one ox would of course have been less.[221]

Recently, however, Jacques Lefort, relying upon still unpublished documents from Hiberon of the beginning of the twelfth century, has arrived at dramatically different conclusions from those of Svoronos. According to Lefort, the average number of oxen to the household was indeed about one, but the average holding of a household with one ox varied between 25 and 50 modii (2-4 hectares), with an average closer to the lower figure. The actual averages for the twelfth-century documents studied by Lefort are 0.85 ox and 27.5 modii per household. Lefort finds support for his conclusions in a document of the fourteenth century from the Monastery of Esphigmenou and even in contemporary Macedonia, where the average farm is 32 stremmata (3.2 hectares).[222] Lefort's findings would therefore point to an average Byzantine holding of some 30 modii (2.4 hectares), compared to the about 100 modii suggested by Svoronos.

Evidence from the medieval West shows that neither figure is out of the question. Pounds estimated the average peasant holding in the early Middle Ages at between 10 and 15 hectares. His estimate is based on ninth-century documents showing that a *mansus* averaged some 9 hectares on the lands of the Abbey of St.-Germain and some 15 hectares on the lands of St.-Remi of Rheims. Though the *mansus* was theoretically the holding of one peasant, Pounds notes that some peasants held half-*mansi*, a fact that he tentatively attributes to incipient population pressure. By the late thirteenth century, with population pressure increasing markedly, Pounds cites documents putting most peasant holdings in Alsace and Namur under six hectares, and many below two.[223]

Thus the figures for the ninth-century West roughly agree with those of Svoronos for fourteenth-century Macedonia and the overall Byzantine average, yet the figures for the thirteenth-century West roughly agree with those of Lefort for twelfth-century Macedonia. Further, though the average holding in Macedonia today seems to be evidence in support of Lefort, the Turkish agricultural census of 1950 appears to be evidence in Svoronos' favor, putting the average holding in Turkey

at about 7.7 hectares.[224] The numbers for average holdings may be summarized as follows for comparison:

Byzantium (Svoronos)	8 ha. (100 mod.)
ninth-century West (Pounds)	10-15 ha. (125-187 mod.)
modern Turkey	7.7 ha. (96 mod.)
twelfth-century Macedonia (Lefort)	2.4 ha. (30 mod.)
thirteenth-century West (Pounds)	2-6 ha. (25-75 mod.)
modern Macedonia	3.2 ha. (40 mod.)

If there is confusion about the average holding in Macedonia in the twelfth through fourteenth centuries, for which a certain amount of evidence exists, obviously no precise estimate can be made for the ninth-century Empire, for which no figures at all have been found. But after all we would not expect the averages for all places and times to be identical. Probably population pressure in Theodora's Empire was greater than in the ninth-century West and less than in the thirteenth-century West. Probably average holdings in Macedonia have in most times been smaller than those in Anatolia, so that the average for the whole Empire in the ninth century would have been higher than that for Macedonia at the same date.

Such considerations suggest that the true average for the ninth-century Empire fell somewhere in between the figures of Lefort and Svoronos—perhaps near to the four to six hectares (50-75 modii) recently estimated as the average holding in Attica in the fifth century B.C.[225] However, we must also take into account the fact that not every holding would have been fully taxed. Certain lands would have been exempt from taxation; in particular, land that had been ravaged by the enemy was at least partly exempt for up to thirty years, so that the effects of the Arab invasion of 838 would still have been noticeable in reduced land tax revenue throughout Theodora's regency.[226] The revenue would also have been reduced somewhat by corruption, inefficiency, and errors in the process of collection, though Theodora's regency does seem to have been a time of relatively efficient and honest tax collecting.[227]

For these reasons, even though Lefort's average holding in twelfth-century Macedonia is probably too low as an average for the whole ninth-century Empire, it may not be much too low as an estimate of the average amount of land per household on which taxes were actually paid during Theodora's regency. Since precision in these figures is

impossible and we are seeking only a rough guideline, we may tentatively take about 30 modii as the average holding on which taxes were paid. The area under cultivation by 2.5 million rural households would therefore have been about 75 million modii. At the tax rates reported by Ibn Khurdādhbih, the revenue would then be as follows, in millions of nomismata:

Hearth tax (2.5 million hearths X 0.5 nom.)	1.25
Land tax (75 million modii X 0.015 nom.)	1.125
Subtotal	2.375
Surcharges (20%)	0.475
Total	2.85

Such a total for direct taxation is approximately what would follow from the expenditures of about 3.3 million estimated above. Because, as we shall see, a reasonable estimate of the Empire's other revenues would be around 400,000 nomismata, the revenues from hearth and land taxes may be estimated at 2.9 million, a figure that cannot be considered at all precise. Of this total, some 500,000 would have been surcharges, about half of which (the *synetheia* and the *elatikon*) would have gone to the tax collectors. This computation is the source of the estimate of 250,000 nomismata proposed earlier as the tax collectors' share, an estimate that would be little affected by adjustments of a few hundred thousand nomismata to the total estimate for direct taxation.

No doubt we shall someday be able to make a better estimate than this of the Empire's revenue from land and hearth taxes. But we do not need to wait for that estimate in order to reject Bury's estimate of the total revenue. Even if the Byzantines had drained all the lakes, irrigated all the deserts, and plowed to the top of all the mountains in their Empire, paying full land and hearth taxes on the lot, these taxes would still have amounted to only some twenty million nomismata, less than half the total revenue estimated by Bury.[228] His estimate of the revenue would have been far beyond the power of the Empire to raise.

Other Revenues

The Empire's other sources of cash revenue were the trade and market duties, the production of the imperial estates and monopolies, fines, confiscations (of which none are recorded for Theodora's regency), inheritance taxes, and head taxes on non-Christians. To

judge from attestations in the sources, the most important of these were the trade and market duties, or commercia. These were a tax of 10% levied on goods when they were sold or passed customs frontiers, which were sometimes but not always the same as the frontiers of the themes. The term commercia also included fixed sums levied on commercial fairs and some other special duties on certain kinds of trade.[229]

Under Leo VI (886–912), the Strategus of the Theme of Mesopotamia, a border theme adjoining the Caliphate and created between 899 and 912, received the entire commercia of the theme as his salary. He ranked just after the Strategus of Thrace and just before the Strategus of Chaldia, each of whom then received a salary of twenty pounds of gold (1,440 nomismata) a year.[230] This arrangement implies that the commercia of Mesopotamia averaged something like twenty pounds of gold a year. If we take 1,440 nomismata as the average annual commercia of a theme, we arrive at a figure of some 43,000 nomismata for the thirty themes that existed under Leo VI.

This figure is certainly too low for the entire Empire, because it makes no special allowances for the main commercial centers, above all Constantinople. In 795, Ephesus in the Thracesian Theme paid commercia of 100 pounds of gold (7,200 nomismata) for its great fair alone.[231] After 932, an Arab source estimates that the commercia paid at Attalia in the Cibyrrhaeot Theme, where all trading ships from Syria had to dock and pay duty, were 300 pounds of gold (21,600 nomismata), though earlier they had been somewhat less. The same source implies that the commercia paid at Trebizond in the Theme of Chaldia, another customs station for goods from the East, were on a scale comparable to those of Attalia.[232]

The commercia of Constantinople must have been at least two or three times those of Attalia or Trebizond, because many of the goods that passed through the other stations eventually arrived at the capital and were again subjected to duty there, along with domestic products of the Empire. Even under Manuel I (1143–80), after Italian traders had been granted sweeping exemptions from trade duties, Benjamin of Tudela estimated the annual commercia of the capital at 20,000 new nomismata, the equivalent of 15,000 old nomismata.[233] This amount would have been much greater if all traders had paid the Byzantines the former rates. In 1348, the duties collected at Constantinople by the Byzantines still equaled some 15,000 old nomismata a year, but those collected by the Latins in their autonomous colony in Galata were

equivalent to some 100,000 old nomismata.[234] Since by then trade was plainly larger than in the ninth century, the total under Theodora would have been well below 115,000 nomismata, but still substantial. The sum of this evidence suggests that the commercia for the whole Empire in the ninth century amounted to between 100,000 and 200,000 nomismata, in any case only a small fraction of the revenue from hearth and land taxes.

Recently John Nesbitt has argued persuasively that the patterns of office holding shown by seals indicate that the commerciarii were tax farmers.[235] Nesbitt has not, however, suggested what proportion of the commercia might have been the share of the commerciarii and their assistants. The surcharges that made up the share of the collectors of land and hearth taxes amounted to about a twelfth of the total collected in theory, and perhaps a tenth in practice. Since the commercia were levied even on quite small items, levying a complicated surcharge on them would probably have been unworkable; but the commerciarii might well have been entitled to keep a fraction of their gross, such as a tenth or a twelfth. The figure of about 15,000 nomismata suggested earlier as the possible income of the commerciarii would be a tenth of commercia of 150,000 nomismata; but it is only a guess, very much open to modification by future work on the commerciarii and commercia.[236]

About the other sources of revenue we know even less than about the commercia, but our ignorance is itself significant, because revenues mentioned so seldom are likely to have been relatively modest in size. The probable amount of the commercia is an indication of the small volume of Byzantine manufacturing and trade, and consequently a guide to how much revenue the rents on imperial bazaars and the imperial mining and salt monopolies could have produced.[237] They can hardly have contributed more than the commercia did, and probably contributed a good deal less. The imperial armories would not have produced revenue in cash; though the mint might well have turned some cash profit by means of minting charges, there appears to be no evidence of this in the period under review. As has already been noted, the imperial estates seem to have been of small proportions at this time, except for those in the immediate area of the capital, which are mentioned by Ibn Al-Faqīh; they largely supported the Court and the tagmata, and probably yielded little revenue in cash.[238] Fines were mostly paid to the injured parties, except for a curious law-enforcement levy called the *aerikon,* apparently not a large item.[239]

Few imperial subjects could have had enough surplus cash to pay an inheritance tax of any great size. We hear of inheritance taxes in this period only when Nicephorus I demanded back inheritance taxes for twenty years, a measure which implies that the amounts were not very large and were erratically collected.[240] That Theodora collected any such tax is uncertain. According to Ibn Khurdādhbih, the head tax on Jews and Zoroastrians was one nomisma a year.[241] This head tax, double the hearth tax for a household with one ox, was probably levied only on heads of households, because if it had included wives and children and come on top of other taxes many households could hardly have been able to pay it. Byzantine Zoroastrians were negligible in number. Byzantine Jews, who have been estimated at some 20,000 heads of households in the twelfth century on the basis of Benjamin of Tudela's figures, might have paid some 20,000 nomismata annually.[242]

Conclusion

In sum, if the Empire's state revenues totaled about 3.3 million nomismata, the portion from hearth and land taxes might reasonably be estimated at about 2.9 million and that from all other sources at around 400,000. Though such estimates are not independent or reliable enough to be taken as proof that the totals already estimated for the expenditures and surplus are right, the former do demonstrate how the latter could have been raised. Since the figure for the annual surplus of half a million nomismata is based on relatively good evidence, the estimate of 3.3 million for the revenue can be considered accurate within the margin of error indicated for the estimate for expenditures: about 400,000 nomismata either way. The revenues might therefore have totaled as little as 2.9 million nomismata or as much as 3.7 million.

The budget estimated here may seem extremely small, particularly in comparison with the budget of the contemporary Caliphate that was about seven times as much. The smallness of the Byzantine cash budget can be largely explained by pointing to the many ways in which the government supplied its needs without expending cash. The Empire maintained a large army at less than a living wage for the soldiers and with scarcely any cash outlay for mounts, provisions, and equipment. This feat was performed by having the soldiers provide their own food, mounts, and equipment in most cases from grants of farmland. In this

one respect, a parallel with the feudalism of Western Europe would be apt. Modern notions of "Byzantine bureaucracy" to the contrary, the Byzantine bureaucracy was on the whole both small and well-paid, a combination of qualities likely to lead to saving money in the long run. Except for upholding the prestige of the Court, which was largely done from the resources of imperial estates and factories and from exactions in kind, luxuries were kept to a minimum—at least under Theodora. Essential services were generally provided by means outside the money economy and therefore outside the cash budget.

Although a cash estimate of most of the budgetary items in kind remains beyond our reach, we can compute at least a minimum estimate for the value of the most important item: the produce of the soldiers' lands. According to a novel of Constantine VII, before the tenth century the land that supported a cavalry soldier, or a marine in a naval theme, had a minimum value of four pounds of gold, or 288 nomismata.[243] About 842, the cavalry with lands would have numbered at least some 18,800, a fifth of the 94,000 troops of the non-naval themes, while the marines of the Cibyrrhaeots would have made another 2,000.[244] The lands supporting the cavalry and marines would therefore have been worth at least six million nomismata.

According to calculations made by Ostrogorsky on the basis of a substantial body of evidence, the average price of a modius of first-class arable land was about three-quarters of an old nomisma.[245] At this rate, the land for a cavalryman or marine would have been equivalent to at least 384 modii of first-class arable. Since a family could evidently be supported on 30 modii, the land for a cavalryman was plainly sufficient to provide his rations, horse, and equipment, and probably to allow him to have a squire as well.[246] The *Tactica* of Leo VI indicate that a cavalryman should not need to work the land himself, but should have others who could do the work for him. A holding of 384 modii would have been enough to support at least a half-dozen relatives, hired hands, tenants, slaves, or others with a legal obligation to support the cavalryman.[247]

The reason that the tenth-century military legislation does not mention lands for the infantry is probably that they were considered to be "poor" and so were protected by other laws.[248] Like other farmers, however, the 75,200 or so thematic infantry must have had an average of at least 50 modii apiece.[249] The minimum total of all the military lands together may therefore be calculated as follows:

lands of cavalry and marines (20,800 X 384 modii)	7,987,200
lands of infantry (75,200 X 50 modii)	3,760,000
Total	11,747,200 modii

Thus the military lands would have been equivalent to a minimum of about twelve million modii of first-class arable, perhaps 10% of the cultivated area of the Empire.[250] In fact, because some of the cavalry, marines, and infantry would have had more than these minima and many of the 24,000 tagmatic troops and 60,000 or so oarsmen probably had lands of their own, the total lands supporting the army and navy must have been considerably larger than twelve million modii. They ought to have been a fairly high percentage of the whole, because nearly 8% of the Empire's heads of household would have been serving in the military establishment.[251] They also ought to have been large if, as has been conjectured, they were created from the bulk of the old imperial estates, which had formed 15%, 16%, 18.5%, and over 50% of certain areas of the Empire before the seventh century.[252]

The average annual rate of productivity in the Balkans has recently been estimated by N. Kondov on the basis of fairly convincing evidence at about five modii of wheat from each modius of land.[253] Obviously, most wheat produced in the Empire would have been consumed or bartered without ever being sold for cash, but wheat that was sold would have brought a price of about a twelfth of a nomisma per modius.[254] The lands supporting a cavalryman could therefore have produced 1,920 modii of wheat, with a market value of 160 nomismata. An infantryman's lands could have produced at least 250 modii of wheat, worth about 21 nomismata. Some of this produce would have been turned into cash. It was not particularly remarkable for a cavalryman to have cash savings of three pounds of gold (216 nomismata), which can hardly have all come from his pay.[255]

Naturally, any estimate of the total monetary value of the military lands' production must be a hypothetical one, complicated by the facts that not all land was first-class arable or planted in wheat, and that the Empire's money supply would have been inadequate to convert all produce into cash at the ordinary prices. Still, the minimum total of twelve million modii of military lands is so plainly a low estimate that the calculations suggested for its production are not likely to give an estimate that is too high in its implications. This minimum estimate would be the equivalent of 60 million modii of wheat, with a market value of five million nomismata. At this figure, the annual

production of the military lands would have had a value about three and a half times that of the military payroll and one and a half times the total of all cash expenditures.

This conclusion may be compared with Andréadès' final statement on the budget, made after a discussion of the problems involved in estimating the revenues: "But even after all this has been said, it is probable that, except in the days of the Palaeologi (1261–1453), when the Empire was but the shadow of its former greatness, and in certain peculiarly disastrous reigns, the State revenues must have exceeded, and sometimes greatly exceeded, the sum of 100 million gold francs [6.7 million nomismata]. Those who assert the contrary forget, amongst other things, that one must not take into account only the expenditure in money, since a part of the expenditure, as well as of the revenues, was in kind. . . ." Andréadès further made it clear that he includes in this figure the separate budget of the Church, which has been excluded here.[256]

If the income of the military lands is included, even with other items in kind and the budget of the Church left out, the present estimate would put the Empire's budget well over Andréadès' minimum. The budget of the Church, including income in kind from donations and estates and expenditure in kind on buildings, charity, and support for monks and clergy, must have been sizable, and admittedly provided charitable and educational services to the public that would have formed part of the state budget in many other states. Given Andréadès' very broad definition of the state budget—a definition that seems influenced by the objections of Stein—the figures suggested here rather support him than otherwise.

The contribution of the military lands makes a comparison of the Empire's cash budget with that of the Caliphate misleading for assessing the military situation. The Caliphs paid their regular soldiers a generous wage that could cover all expenses; it amounted to 80 dirhams a month, the equivalent of some 64 nomismata a year.[257] This was more than seven times the average annual wage of 9 nomismata estimated here for regular Byzantine soldiers. For the Empire to have paid its 120,000 regular troops at the Arab rate would have cost it an additional 6.6 million nomismata, more than tripling its cash expenditures and making them nearly half as large as those of the Caliphate. Yet the surviving accounts of many campaigns show that Byzantine soldiers fought at least as well as their far more expensive Arab counterparts. Even with the help of military lands, however, the Empire

could not afford to maintain as many soldiers as the Caliphate. The largest recorded Arab field army in the mid-ninth century was 80,000 men, while the largest recorded Byzantine field army in the period was 40,000.[258]

The financial inferiority of the Empire to the Caliphate at this date should not be surprising. Even excluding all desert, the Caliphate had about six times as much land as the Empire, and it controlled a population something like two and a half times as large.[259] Further, in the ninth century Egypt, Syria, and Mesopotamia were urbanized and agriculturally productive territories that had suffered less from warfare than Asia Minor had.[260] Only such a system as that of military land holdings could have enabled the Byzantines to do even as well as they did against their much richer Arab enemies. Fortunately for Byzantium, the Arabs' other military problems and internal dissensions, the barriers of the Taurus and other mountains of Asia Minor, and the natural advantages of the defender against the attacker worked in the Empire's favor. Nevertheless, the Arabs regularly raided wherever they wished in Asia Minor, at one time or another captured every major Byzantine city in the region, and in 673–78 and 717–18 would certainly have conquered the Empire outright had it not been for the walls and location of its capital, which virtually no force could take.

3

GENERAL SURVEY OF THE FINANCES (717–886)

The estimates made thus far in principle apply only to the period from 842 to 856, and then only as annual averages. In most categories of the budget, independent estimates for other times in the eighth and ninth centuries cannot be made, but it is possible to give some indication of the trends in the surplus, expenditures, and revenues during these two centuries that would have made estimates for other periods higher, lower, or about the same. To illustrate the comparison, adjusted estimates for the main budgetary items will be suggested for the period in the eighth century for which the evidence is best: the reigns of Constantine VI and Irene (780–802).

Surpluses and Deficits

Again, the sources are most specific about the gold reserve. In 711, at the second overthrow of Justinian II, the reserve was large (*πλήθη κρημάτων*) but Justinian's successor Philippicus soon spent much of it.[261] By 768, Constantine V had saved so much gold that he set off a sort of gold panic, in which prices in nomismata for grain fell to one-fifth the normal amount.[262] At his death in 775 Constantine still had a large reserve, because the share he left to his younger sons by itself totaled 50,000 pounds of gold, or 3.6 million nomismata.[263] Apparently the budget was in rough balance for the rest of the century,

because in 802 Irene left a treasure of considerable size to Nicephorus I.[264]

By 811 Nicephorus had increased this treasure greatly, but soon thereafter Michael I reduced it to what the chronicler Theophanes thought was a sensible amount.[265] We have already seen that in 842 Theophilus probably left a surplus of 6,984,000 nomismata, and that Theodora increased this to 13,680,000 by 856.[266] The former reserve represented about two years' revenue, and the latter about four years'. Though Theodora's reserve seems to have been a record, nothing indicates that the Empire ran seriously short of cash at any time between 711 and 856. Constantine V's reserve at its height may well have equaled that of Theophilus, if not that of Theodora. Whether Constantine VI and Irene ran a slight surplus or a slight deficit over their 22 years is hard to say, but over such a length of time any average annual surplus or deficit would have been relatively insignificant.

After 856, however, during the reign of Michael III, the reserve is said to have declined precipitously. As noted above, by 867 Michael had run through the cash reserve and had to coin 1.44 million nomismata from the gold ornaments of Theophilus in order to meet the army payroll.[267] When Michael was murdered later in 867, Basil I is reported to have found only 1,300 pounds of gold and an inconsequential amount of silver in the treasury, or a mere 93,600 nomismata.[268] On the assumption that Michael did not melt down significantly more than 20,000 pounds of ornaments—and one of our two sources is so hostile to Michael that he would probably tell us if Michael had done so—these data indicate that Michael ran an average annual deficit of some 1.31 million nomismata between 856 and 867.

These were truly reckless deficits, and in the absence of a state system of borrowing they could not have gone on much longer without the treasury's defaulting on its obligations. Under such circumstances, which are also attested by a source hostile to Basil, Basil's overthrow of Michael in 867 was not only justifiable but practically necessary. By exacting repayment of half the gifts that Michael had given to various favorites, Basil quickly raised the gold reserve to 30,000 pounds of gold, or 2.16 million nomismata, which was enough to allow the government to function properly.[269] When Basil later discovered the remainder of the gold ornaments of Theophilus, the treasury was well filled, and apparently remained so throughout the rest of Basil's reign.[270]

Expenditures

The Army Payroll

The army payroll naturally depended on both the size of the army and what it was paid. About 842, as we have seen, the troops of the themes and tagmata numbered 120,000 on the rolls. According to Theophanes, in October of 773 Constantine V learned from his spies in Bulgaria that the Bulgarians were planning a raid on the Empire with a force of 12,000 men. To meet this threat, Constantine called up the soldiers of the themes, the tagmata, and the Optimates—in short, the Empire's whole regular army—and these, Theophanes says, totaled 80,000 men. With this mighty force, Constantine ambushed the 12,000 hapless raiders and crushed them utterly.[272] Theophanes' report cannot be taken absolutely literally. Constantine could hardly have dared to leave Asia Minor completely denuded of troops, and could hardly have managed, especially on fairly short notice, to summon every soldier from every theme, including faraway Sicily. Besides, Constantine would not have needed 80,000 soldiers to surprise 12,000 Bulgarians. In fact, in the following year Theophanes says that Constantine made "another great expedition" with just 12,000 cavalry and a fleet.[272] Probably in 773 Constantine called up a force not much larger than this, which represented only a part of the force on the muster-rolls.[273]

But even if Theophanes is wrong that Constantine used 80,000 troops to ambush the Bulgarians, the chronicler may still be right that in 773 the Empire had 80,000 soldiers on its rolls. Since Theophanes does not show any signs of understanding the difference between the number on the rolls and a field army, he may have taken a figure for the former from his source and simply assumed that Constantine led that entire army against the Bulgarians. If so, the army would have grown by 40,000 men between 773 and 842. Can this growth be traced in our sources for changes in the army during these years?

If no major developments occurred of which we are not aware (a condition which we cannot take for granted), it should be possible to work back from the roll of the army in 842 to the roll of the army in 773. For this purpose losses in battle can presumably be ignored, because according to Jarmī they were made up routinely until the original strength of the divisions was restored. The *Life of Philaretus* shows that the division of the army into drungi of an even thousand men went back to the eighth century, as we shall see.[274] The creation of

new themes needs to be considered only if it involved adding new soldiers, which was not necessarily the case if a theme was created by detaching from an existing theme a region that was already provided with soldiers.

Three themes and three cleisurae were created by detachment between 773 and 842. The Theme of Macedonia was detached from the Theme of Thrace; the themes of Paphlagonia and Chaldia and the Cleisura of Charsianum were detached from the Armeniac Theme; and the cleisurae of Seleucia and Cappadocia (the latter subsequently a theme) were detached from the Anatolic Theme. But other themes were created in territory where no theme had existed before, and for these new soldiers would have had to be found and given lands. Between 773 and 842, five such themes were created: Peloponnesus, Cephalonia, Thessalonica, Dyrrhachium, and the Climata; one new tagma, the Hicanati, was created as well. According to Table IV, the total strength of these entirely new units was 14,000 men about 842.

Additions could also be made to older themes, but only one such case is recorded between 773 and 842. This was in late 839, when Theophilus put down a revolt by the Khurramites who had fled to him from the Caliphate in 834.[275] Theophanes Continuatus and Genesius both report that in order to prevent another revolt Theophilus divided up the total of 30,000 Khurramite soldiers and sent 2,000 to each theme.[276] In practice, the division was probably less tidy, perhaps involving some new recruitment and some flexibility in distributing the Khurramites; but the principle that each drungus should have 1,000 soldiers must have been maintained, because it is attested almost immediately afterward by Jarmī. Theophilus therefore assigned two drungi to each of fifteen themes.

By 842, however, there were seventeen themes, or twenty-one military districts if the cleisurae and the Optimates are included. Further, eight of the themes seem to have had only 2,000 soldiers in 842, so that if Theophilus added 2,000 soldiers to them in 839 he must have created them then. In fact, he is known to have created one of them, the Climata, about 839, and probably created Dyrrhachium, which is first attested in the *Tacticon Uspensky* of 842/43.[277] Since all six of the remaining themes with 2,000 men are securely attested before 839, Theophilus must not have sent Khurramites to them, probably because he did not consider them important enough.[278]

This leaves fifteen military districts to receive the Khurramites, including the Optimates and the cleisurae, which for this purpose seem

equivalent to themes. Before the Khurramites were added to them, the themes and tagmata would have had 90,000 men (120,000 – 30,000 = 90,000). Four thousand of the 14,000 men in entirely new units would have been the four new drungi sent to Dyrrhachium and the Climata. Before the remaining 10,000 men of Peloponnesus, Thessalonica, Cephalonia, and the Hicanati were added, the army would have had 80,000 men (90,000 – 10,000 = 80,000), precisely what Theophanes said it had in 773. This striking correspondence suggests that no major additions to the army have been overlooked in the foregoing analysis.[279]

Aside from the Khurramites, the sources mention only one major recruitment of new soldiers between 773 and 842. This recruitment occurred under Nicephorus I (802–11). According to Theophanes, Nicephorus "ordered the poor to become soldiers and to be outfitted by their neighbors, who paid eighteen and a half nomismata to the treasury for each one, as well as his taxes under the system of mutual responsibility."[280] Nicephorus' order implies that the neighbors took over the poor man's land, because the tax system assigned land to those who paid the taxes on it.[281] But the new soldier must himself have been given new land in order to support himself and to maintain his equipment, of which his neighbors paid only the initial cost.[282]

In all probability, this recruitment was connected with a measure of Nicephorus's that Theophanes mentions immediately before it, ordering people from every theme to be settled "in the lands of the Slavs" between September 809 and March 810. Theophanes declares that Nicephorus' intention was "by means of these godless punishments to impoverish the army utterly," a phrase that suggests the new recruits were either sent to the lands of the Slavs themselves or replaced thematic soldiers who were sent there. The "lands of the Slavs," obviously in the Balkans, are probably identical with the themes of Peloponnesus, Cephalonia, and Thessalonica, first attested in 812, 809, and 823 respectively.[283] Since Nicephorus is known to have founded the tagma of the Hicanati in 809, the attribution of these three themes to him would explain how all 10,000 new soldiers were recruited.[284] Of the remaining themes, Macedonia was detached from the Theme of Thrace between 789 and 802.[285] Chaldia and Paphlagonia were both detached from the Armeniac Theme, the former between 815 and 821 and the latter between 815 and 826.[286] The three cleisurae, which seem not yet to have existed in 838, were probably created by Theophilus in 839 in order to concentrate the Khurramites on the frontier, where they were

most needed.[287] All these changes in the numbers and organization of the army are summarized in Table VIII.[288]

During this period no permanent transfers of soldiers among existing units appear to be attested, despite a passage that at first glance might look like an exception. Early in 776, according to Theophanes, Leo IV "raised many contingents from themes and reinforced the tagmata; thus roused, the commanders of the themes all arrived [in Constantinople] with a great body of soldiers, asking for Constantine his son as [co-] Emperor."[289] The second part of the passage suggests that Leo did not transfer troops permanently from the themes to the tagmata, but rather summoned thematic troops specifically to join the tagmata in asking him to proclaim his son; after that elaborate demonstration was over, Leo presumably sent the thematic troops and their commanders back where they had come from. Some confirmation that the tagmata did not increase permanently in 776 is provided by the fact that in 773 the Excubitors had at least eighteen banda (3,600 men), and in all probability the twenty banda (4,000 men) that they had in 842.[290]

The rolls reconstructed in Table VIII may be compared with the figures for field armies that appear in the sources. The 12,000 cavalry that Constantine V led against the Bulgarians in 774 would have been equal to the cavalry in the tagmata at that time.[291] In 779, Leo IV told the commanders of the Asian themes to call up 3,000 troops each to fight against Arab raiders, thus raising 15,000 picked troops out of a total roll of 50,000 for the five themes.[292] In 786 the soldiers of the tagmata cashiered by Irene numbered about 6,000 together with their wives and children, so that only 1,200 to 1,500 of the 18,000 tagmatic soldiers would have been dismissed and replaced by her supporters.[293] In 797 Constantine VI marched against the Arabs with 20,000 men, or a quarter of the whole army.[294] In 821 Thomas the Slav, who was then supported by all the themes except the Opsician and by a motley crew of adventurers besides, is said to have had 80,000 men on his side.[295] Thomas' themes would have accounted for 64,000 of these, quite possibly joined by some of the 22,000 men of the tagmata. At the battle of Dazimon of 838 20,000 Khurramites were present, about two-thirds of their total, along with Byzantine soldiers of an indeterminate number.[296] In the 860's Genesius and Theophanes Continuatus mention a campaign against the Arabs in which Michael III led 40,000 men from Thrace, Macedonia, and the other themes; this would have been a third of the whole army.[297]

None of these figures seems to be greatly exaggerated. On the other hand, Theophanes cannot be believed when he says that in 778 Leo IV sent a force of 100,000 men against the Arabs led by the heads of the Thracesian, Anatolic, Bucellarian, Armeniac, and Opsician themes, because that would have been twice these themes' total strength and larger than the entire army at that date.[298] Here 100,000 looks like a large, round number picked out of the air. On the whole, however, the available evidence fits the proposed reconstruction at least as well as could be expected.

Besides these changes in the strength of the army, changes were evidently made in its organization and pay scale. The *Life of St. Philaretus,* referring to a mustering of the Armeniac Theme that probably took place in 785, describes an organization of "chiliarchs," "hecatontarchs," and "pentecontarchs."[299] The *Miracula Sancti Demetrii*, referring to an incident in the late seventh or early eighth century, mention "centarchs, pentecontarchs, and decarchs" recruited exceptionally at Thessalonica.[300] These two texts imply an organization of chiliarchs, commanding 1,000 men each, corresponding to the drungaries of 842; hecatontarchs or centarchs, commanding 100 men each, unlike the centarchs of 842 who commanded only forty; pentecontarchs, commanding fifty men each, with no corresponding rank in the system of 842; and decarchs, commanding ten men each, corresponding to the decarchs of 842. This older system had no rank corresponding to the later count of the bandum, a commissioned officer who commanded 200 men in 842.

Apparently at some date between 785 and 842 the new, commissioned rank of count was created, the centarch's command was reduced from 100 to forty (though his title survived as evidence of the earlier system), and the rank of pentecontarch was abolished. The two systems are compared in the first three columns of Table IX. Though the total number of officers would have remained stable at 131 for each drungus, the number of commissioned officers would have risen by five and the number of centarchs by fifteen. No doubt in practice five centarchs in each drungus were promoted to count, presumably with a substantial increase in pay, and all twenty pentecontarchs were promoted to centarch, presumably again with an increase in pay. The 200-man bandum introduced into the themes with the creation of the rank of count was evidently modeled on the 200-man banda that the tagmata already had in 773, when St. Joannicius enrolled in the eight-

eenth bandum of the Excubitors.[301] By themselves, however, these increases would not have affected the total payroll very much.

Nevertheless, a great increase in the total military payroll evidently took place, to judge from a report in Theophanes. According to him, in 811 Arab raiders captured the payroll of the Armeniac Theme, which totaled 1,300 pounds of gold, or 93,600 nomismata.[302] The reconstruction presented in Table VIII indicates that the Armeniac Theme had 14,000 soldiers in 811. At the pay scale of about 842, their payroll would have been some 166,000 nomismata. Yet the real payroll in 811 was only 56% of this figure even on the assumption that in 811 the themes were paid annually—as they presumably were, because otherwise the discrepancy would be impossibly large. Such a substantial difference cannot be explained by any possible increases in the officers' salaries alone, and can only be the result of a large increase in pay for the common soldiers.

If the earlier pay scale also included only even multiples or fractions of pounds of gold and began with one nomisma for the first year of service, the soldiers' maximum pay could only have been six nomismata (one-twelfth pound) after six years.[303] The resulting average of about five nomismata per common soldier annually would then explain the Armeniacs' payroll of 811 without assuming any changes in the salaries of the commissioned officers or the centarchs.[304] Thus the most likely explanation of the large difference between the payroll of 811 as it was and as it would have been at the pay scale of 842 is that the maximum pay of the common soldiers was doubled from six nomismata after six years to twelve nomismata after twelve years. But, no matter how the pay was apportioned, a close enough estimate of the payroll in 811 for the entire army can be made by computing the payroll at the 842 pay scale and taking 56% of the result. At this rate, the army payroll would have been around 550,000 nomismata before Nicephorus recruited his 10,000 troops, and around 600,000 nomismata afterwards.

The date of these changes in the organization and pay scale of the army, which were probably simultaneous because the first implies at least some pay increases, has not been recorded in our sources as such. It evidently fell between 811 and 842. During that period, one major reorganization of the army stands out: Theophilus' incorporation of the Khurramites into the themes in late 839. This measure would necessarily have led to sweeping changes, not only in the two new themes and three new cleisurae created as a result of it, but also in

every old theme that received two new drungi. In such themes 2,000 new soldiers had to be provided with land within territory that had previously had a complement of between 2,000 and 13,000 troops, organized in two to thirteen drungi spread all over the theme. These drungi were evidently territorial units by 785, when the soldier of the *Life of Philaretus* was called to report to his local chiliarch.[305] That the themes had enough suitable land for 2,000 new soldiers all in one or two places where there had been no soldiers before is highly unlikely. Therefore, to accommodate the Khurramites, the territorial boundaries between drungi would have had to be shifted all over the Empire. This shift could have provided the opportunity for introducing the new territorial division of the bandum, commanded by the count.

As for the increase in pay, the general financial situation provides a strong circumstantial case that the increase dated from late in the reign of Theophilus. As we shall see, Theophilus' annual revenue can scarcely have been more than Theodora's, and in view of the Arabs' devastation of the land during his reign probably averaged somewhat less.[306] Theophilus faced expenses similar to Theodora's for his civil service, and his expenditures for military campaigns, diplomacy, and charity were plainly higher than hers. In particular, unlike Theodora, Theophilus spent enormous sums on buildings and decorations, certainly amounting to several million nomismata; after all, just the part of his gold ornaments melted down by Michael III was worth 1.44 million nomismata without figuring the cost of the workmanship.[307] Despite all this, Theophilus ran a substantial surplus over his whole reign, because Theodora attributed to him much of the large reserve that she left in 856.[308]

The only possible means of reconciling these data seems to be to assume that some major item of Theophilus' expenditure was much less than Theodora's through most of his reign, and the only item this could plausibly have been is his military payroll. To be sure, Theophilus would not have had to pay the Khurramites before they arrived—first in a contingent of 14,000 at the beginning of 834, with later arrivals bringing their corps up to 30,000 by late 839.[309] On the assumption that their average number was about 22,000 during the years from 834 to 839, at the new pay scale Theophilus would have saved about two million nomismata by having fewer troops than Theodora, but this sum does not seem enough to account for the difference in his other expenditures.

If the old pay scale was in effect until Lent of 840, however, before that even the full 120,000 troops would have been paid only about 56% of the 842 payroll, or some 810,000 nomismata a year. Over his twelve-year reign Theophilus' total payments to the army would then have been as follows:

old pay scale for 90,000 men: 600,000 nom. X 4 years
= 2.4 million nom.

old pay scale for 112,000 men: 750,000 nom. X 6 years
= 4.5 million nom.

new pay scale for 120,000 men: 1,440,000 nom. X 2 years
= 2.88 million nom.

Total 9.78 million nom.

The total is about 7.5 million nomismata less than Theodora would have paid her soldiers over twelve years, and would imply a further saving of about 2.4 million in comparison with Theodora's payroll for the oarsmen, who were paid at the same rate as the soldiers. This total difference of around ten million nomismata in the army and navy payrolls appears sufficient to explain how over his whole reign Theophilus, with less revenue than Theodora, managed to run a surplus while making vast expenditures that Theodora did not make. No other explanation of this fact seems possible.

Theophilus' motive for raising his soldiers' pay in late 839 would be obvious. Through most of his reign, his army had seemed at least a match for the Arabs. He had won victories against them in 831 and 837, and 30,000 Khurramite troops had fled to him from the Caliphate. But in 838 Theophilus discovered his army's weakness with a shock. His troops were utterly defeated at Dazimon; Ancyra and Amorium, probably the two most important cities of Asia Minor, were sacked; and the Khurramites revolted and held a considerable part of the Paphlagonian, Armeniac, and Chaldian themes for almost a year and a half.[310] Struck by the unexpected precariousness of his military position, Theophilus appealed to the Franks, Umayyads, and Venetians for help.[311]

But these appeals were no substitute for strengthening the Byzantine army. To strengthen the army and to increase the government's control over it, Theophilus distributed the Khurramites among the themes, especially in the frontier regions where the cleisurae were founded. Control over the army could also be increased by tying it to smaller

territorial jurisdictions; the 200-man banda under the newly created counts were therefore carved out of the old 1,000-man drungi under the drungaries or chiliarchs. Most of all, nothing could improve the troops' loyalty, morale, and preparedness more than a large increase in their pay, which the Empire's favorable financial position made feasible. Thus several strong circumstantial arguments lead to the conclusion that it was Theophilus in late 839 who reorganized the army and raised its pay. The conjectural changes in the army payroll between 773 and 842 are summed up in the last line of Table VIII.

Before 773, the evidence is unusually poor. Though the army's pay was so low in 811 that it does not seem likely to have been lower at an earlier date, that possibility cannot be entirely ruled out, particularly for the earlier eighth century. Whether the Thracesian Theme existed before the eighth century or was separated from the Anatolic Theme during the course of the century is disputed, though the former seems more likely.[312] The Bucellarian Theme was evidently separated from the Opsician Theme under Constantine V.[313] Neither these administrative measures nor any others would necessarily have caused any changes in the number of soldiers in the themes, but in the absence of a total like that for 773 we cannot be sure that no new soldiers were added.

We can, however, be reasonably sure that the numbers of the tagmata grew under Constantine V, who by the late 760's had reorganized them and made them much more important. John Haldon has argued from fairly substantial evidence that Constantine upgraded the tagmata from little more than parade-ground troops to an elite fighting force.[314] Although even purely ceremonial troops would presumably have been paid something, their numbers would have been insignificant in comparison with the 18,000 tagmatic troops of 773, who were at that date more than a fifth of the army. Like Theophilus, Constantine V is an Emperor reported to have had a great abundance of gold.[315] Apparently, with an eye on his Bulgarian wars, again like Theophilus, he chose to spend part of his reserve on greatly expanding his army, and consequently his army payroll.

The principal increases in the army's strength and payroll between 717 and 842 appear therefore to have been made by Constantine V, Nicephorus I, and Theophilus. Between 741 and 773 the army and payroll might have increased by as much as a fifth; between 773 and 811 they probably increased by an additional eighth; and between 811

and 842 the army probably increased again by a third, and the payroll by about 140%.

After this, Theodora separated the Theme of the Aegean Sea from the Cibyrrhaeot Theme in 843, and by 863 the Theme of Colonia had been detached from the Armeniac Theme.[316] These changes merely involved some additional pay for a few officers, which in view of the imprecision of the estimates made for 842 is not worth counting; besides, we know that the payroll was still about 1.44 million nomismata in 867.[317]

On the other hand, according to Constantine VII, after Basil I took power in 867, he, "by means of a new levy and selection, filled up the soldiers' muster-rolls which had diminished because of the reduction of the donatives, rogae, and imperial siteresia given them, and strengthened them by furnishing and giving what was necessary."[318] Constantine's unmistakable implication is that Michael III had neglected payments to the army, causing a decline in its numbers and effectiveness. If Constantine is to be trusted, the strength of the army would seem to have fallen significantly below 120,000 by 867, while the payroll at that date would either have been paid irregularly, have dropped below 1.44 million nomismata, or have declined to that figure from some earlier, higher figure.

Constantine, however, is a biased source, eager to condemn Michael and to praise and justify Basil, Michael's murderer. Elsewhere in his biography of Basil, Constantine, like other sources, shows that Michael was liberal to a fault and, as we have seen, melted down the gold ornaments of the Palace rather than miss the army payroll. Further, as Ostrogorsky and others have emphasized, the latter part of Michael's reign was a time when the Byzantine army achieved greater successes than it had for more than two centuries previously.[319]

As has already been noted, no army can ever be up to absolutely full theoretical strength.[320] If Basil made a thorough check of the Empire's muster-rolls, he would doubtless have found a number of obsolete names and many units that were missing a few troops. Since Michael was running short of cash toward the end of his reign, he may well have made some economies in donatives, especially because his donatives had been so liberal before. Probably Basil did revise the muster-rolls, add some troops to fill them out, and pay a new donative. But Constantine's implication that Michael III seriously underpaid the army and reduced its effectiveness in consequence cannot be squared with the other evidence, and should be dismissed as an exaggeration. Signi-

ficantly, Constantine gives no numbers for the troops lost under Michael and replaced under Basil, though he enthusiastically cites figures for Michael's expenditures and deficit.

Basil apparently elevated the Cleisura of Charsianum to a theme by 873, presumably with only a minimal effect on the payroll; his creation of a theme on Cyprus proved to be ephemeral.[321] By 878, however, Basil also created the Theme of Dalmatia, where no theme had existed before. Though Dalmatia had previously had an archon, archons do not seem to have commanded regularly organized troops.[322] If the new theme there was like the other Western themes, its creation would have added 2,000 new soldiers to the army. Provided that the pay scale and the system of military organization had remained unchanged, the payroll of Dalmatia would have been about 23,000 nomismata, and the total payroll would then have been some 1,470,000 nomismata.

The question now is how long the army's pay scale and command structure remained as they had been about 842. By the end of Leo VI's reign in 912, both were somewhat different. By then, as noted above, the pay scale of the strategi and cleisurarchs had been changed from 40, 36, 24, 12, and 6 pounds of gold to 40, 30, 20, 10, and 5 pounds.[323] Though much of the information in the *Tactica* of Leo VI is taken from earlier military manuals and long outdated, a section near the end of the *Tactica* has no earlier parallels and appears to reflect contemporary conditions. It includes a description of the command structure of a 4,000-man force, which could be either the themal army of Cappadocia, Chaldia, Charsianum, or one of the new themes formed by Leo, or a composite force from different themes.

The numbers of the officers for the 4,000 men are two turmarchs, four drungaries (or chiliarchs), twenty counts, forty centarchs (or hecatontarchs), eighty pentecontarchs (or tribunes), 400 decarchs, and 800 pentarchs, for a total of 1,346 officers, a sum that agrees with the individual figures.[324] Elsewhere the *Tactica* note that decarchs commanded ten men each and pentarchs five, figures which also agree with the totals given for the 4,000-man army (400 X 10 = 4,000, 800 X 5 = 4,000).[325] The commands of the other officers are easily computed on the principle that each officer of a given rank commanded the same number of men, a principle which is further supported by the titles of the chiliarch, hecatontarch, and pentecontarch, who appear to have commanded 1,000, 100, and 50 soldiers respectively. The system is summarized in the last column of Table IX. It differs from the system described by Jarmī in having two turmarchs for a 4,000-man theme in-

stead of one, centarchs who commanded 100 men instead of 40, and pentecontarchs and pentarchs who are absent from Jarmī's description.

The command structure described in Leo's *Tactica* can be dated to after 899 by a comparison with the guest-lists in the treatise of Philotheus. Although the system described in the *Tactica* evidently applies to the themes, it would apply *a fortiori* to the elite corps of the tagmata, who could scarcely have had fewer officers than the themes did. In 899, Philotheus records that each of the four 4,000-man tagmata had 204 commissioned officers, consisting of topoteretae, a chartulary, counts, centarchs, a protomandator, bandophori, and mandators—in some cases with different but equivalent titles. The numbers of each kind of officer would have been as follows, according to the command structures described by Jarmī and in the *Tactica*.

Jarmī	*Tactica*
2 topoteretae	2 topoteretae
1 chartulary	1 chartulary
20 counts	20 counts
100 centarchs	40 centarchs
1 protomandator	1 protomandator
40 bandophori	40 bandophori
40 mandators	40 mandators
204 commissioned officers	144 commissioned officers[326]

The totals show that the change in organization must have taken place after 899, though before the end of Leo's reign in 912.

Adding the pentarchs probably involved nothing more than bestowing a new title on one in five common soldiers, whose command of five men thus included himself; the title "tetrarch" also occurs in the *Tactica*.[327] If so, the new command structure would have brought with it an addition of only five new men for each thousand soldiers. The addition of the pentecontarchs, however, would have affected the cavalry, because the *Tactica* of Nicephorus II (963–69) specify that tenth-century cavalry brigades had to number fifty men each, the command of a pentecontarch.[328] A bandum included the commands of four pentecontarchs. Though the banda of the naval themes and perhaps some other banda included no cavalry, a bandum that did have cavalry must have included at least one cavalry pentecon-

tarchy, or 50 calvary to 150 infantry, a ratio of 1:3. In this case, the cavalrymen would no doubt have held lands spread all over the territory of the bandum, and indeed Nicephorus II refers to fifty cavalry as a "bandum."

Under the system described by Jarmī, the basic cavalry unit was presumably the forty-man group commanded by the centarch; then a bandum with cavalry would have included at least one cavalry centarchy, or 40 cavalry to 160 infantry, the ratio of 1:4 that has already been suggested on other grounds.[329] Even under the earlier system described by the *Life of Philaretus*, a cavalryman without a horse had to face the anger of his hecatontarch (centarch), evidently his commander.[330] Since the bandum did not then exist as a territorial unit, a drungus with cavalry might have included two cavalry centarchies, 200 cavalry to 800 infantry, again a ratio of 1:4.

The new system described under Leo VI thus looks like an attempt to raise the ratio of cavalry to infantry that had obtained under the two previous systems, though of course certain banda might have had no cavalry, and some cavalry may have been transferred from bandum to bandum or theme to theme to put the new system into effect. The *De Administrando Imperio* records that Leo VI did transfer some banda and turmae from one theme to another.[331] The transfer may well have been part of a far-reaching military reorganization that included making the changes reflected in the fourth column of Table IX and offsetting the added expense by lowering the salaries of strategi and cleisurarchs. This reorganization apparently dated from between 899 and 912, and so falls outside the period chosen for the present study. Before 886, the roll of the army would have resembled that of 842 in all important respects except for the addition of the Theme of Dalmatia and the separation of the themes of the Aegean Sea and Colonia from the Cibyrrhaeot and Armeniac themes. The army payroll would have been a marginally higher 1.47 million nomismata or so.

Other Military Expenditures

During the eighth and early ninth centuries the Empire's military expenses apart from the army payroll would have been generally less than under Theodora. The biggest item, the pay of the oarsmen of the Fleet and themes, might have been less in about the same proportion as the army payroll. If the oarsmen had all along numbered the about 60,000 that they did in Theodora's time, under the old pay scale their

payroll would have been only some 300,000 nomismata instead of 540,000. The entire fleet had about 300 ships in 853. In 822, Thomas the Slav is said to have had 350 ships, including practically the whole Byzantine fleet and many new ships built for him, a number which suggests that the fleet may have been about the same size in the eighth and early ninth centuries as in 853.[332]

The rest of the military expenses would have been of the same order of magnitude as during Theodora's regency. The salaries of the various military officials and officers off the regular army payroll were probably paid at the same rate and their numbers would not have been much smaller. Extra pay for campaigns, which was partly meant to cover the soldiers' expenses, was not necessarily computed at a lower rate even when the old scale was in effect for regular pay; the number of soldiers who went on campaigns was not necessarily much smaller in the earlier period, even though the total roll of the army was smaller.[333] Campaigns were more frequent under Leo III, Constantine V, and Nicephorus I than under Theodora. Even in the relatively peaceful reigns of Constantine VI and Irene there were eleven major campaigns, which for a span of twenty-two years equals Theodora's rate of a major campaign every two years.[334]

The costs of miscellaneous building and maintenance would have tended to be greater when there were more campaigns and especially when there were more Arab raids, though the smaller size of the army before Theophilus' reign would have tended to reduce these costs somewhat. Overall, the miscellaneous annual military expenditures estimated at 800,000 nomismata under Theodora might be estimated at 600,000 under Irene. During reigns of greater military activity the average total might have been one or two hundred thousand nomismata higher.

After 856, under both Michael III and Basil I these various military expenditures no doubt exceeded Theodora's, because with an army of roughly equal size they campaigned more. Their reigns also saw the recruitment of three well-paid units of imperial bodyguards under the Hetaeriarch, a military official who appears in Philotheus' treatise but not in the *Tacticon Uspensky*.[335] Under Michael and Basil the Empire's annual military expenses could therefore have averaged one to three hundred thousand nomismata more than under Theodora.

The Civil Service Payroll

About half the total pay of the government's non-military employees under Theodora was that of the tax-collectors, which depended on the amount they collected. We shall see that there are a number of indications that the Empire's population, economy, and revenue expanded throughout the late eighth and the entire ninth centuries. An expanding economy would also have brought pressure to increase the bureaucracy, and indeed the evidence of precedence lists and seals points to a slow increase in the number of civil servants during the whole middle Byzantine period. Taking into account both the smaller tax revenue and the earlier stage of growth of the bureaucracy, the rough estimate of 500,000 nomismata for the pay of civil servants under Theodora might be lowered to a rounded estimate of 400,000 nomismata under Irene.[336]

Under Michael III and Basil the numbers of the non-military employees continued to increase somewhat. Constantine VII records that Basil created many new judges with a high annual salary.[337] His report can be confirmed through a comparison of the *Tacticon Uspensky* with the treatise of Philotheus, because the latter shows two classes of judges who do not appear in the former; the new judges hold a position in the list which would correspond to pay of six and three pounds of gold a year.[338] Basil also created the office of Curator of the Mangana, with an officium of his own that resembled the officium of the Great Curator.[339] The pay of these new officials would have raised the total by several thousand nomismata, an amount that would still leave the total estimate at 500,000 if we round it to the nearest hundred thousand.

Other Non-Military Expenditures

The other non-military expenses must have varied enormously. Except for the extravagant Philippicus, the emperors of the eighth century generally avoided extra expenditure unless it was necessary. Occasionally it *was* necessary. In 740, when an earthquake severely damaged the walls of Constantinople, Leo III ordered them rebuilt, though he raised the taxes to do so.[340] In 767, when the capital ran out of water, Constantine V ordered the disused Aqueduct of Valens to be repaired.[341] In 769, with his large reserve of gold in the treasury, Con-

stantine permitted himself to scatter about some newly-minted gold coins on the occasion of the coronation of his third wife and younger sons, probably in an attempt to calm the gold panic then prevailing.[342] This is, however, the only donative recorded for Constantine's reign or for his father's, and no luxury building whatever seems to be attributable to either reign.

At his accession in 775, Leo IV gave a substantial donative to the people of Constantinople.[343] When Leo ordered Theophanes to rebuild Cyzicus, however, the future chronicler had to pay for the work himself.[344] A more marked increase in spending came with the reign of Irene, who built churches, commissioned artwork, built herself a new palace in the region of Eleutherius, and rebuilt the devastated cities of Beroea in Thrace and Anchialus, presumably contributing to the construction of the public buildings in both.[345] During seven of the twenty-two years of her reign Irene paid an annual tribute of 140,000 nomismata to the Caliph, an average of some 45,000 nomismata a year.[346] Irene also appears to have paid tribute to the Bulgarians, but the dates are uncertain and the amount is not recorded.[347] Because Theodora paid no tribute and evidently built less than Irene, Irene's miscellaneous non-military expenditures would have averaged more than Theodora's—in a round number, perhaps 200,000 nomismata a year.

In 806, Nicephorus I agreed to pay the Arabs the more moderate tribute of 30,006 nomismata a year, the 6 nomismata being a head-tax for himself and his son Stauracius.[348] This tribute was as much a humiliation as a major expense; the total of Nicephorus' tribute during his reign barely exceeded his losses of 172,800 nomismata when the payrolls of the Armeniac Theme and of an army on the Strymon River were captured by the Arabs and Bulgarians.[349] Nicephorus rebuilt the cities of Ancyra, Thebasa, Andrasus, Patras, and Sparta, and no doubt went to some expense to do so.[350] He seems, however, to have conscientiously avoided spending on luxuries and donatives.

By contrast, Michael I (811–13) won a reputation as a free spender. Theophanes says that Michael gave away in a few days all the excessive cash reserve that Nicephorus had hoarded. The chronicler lists amounts of gifts to various small groups and individuals which total 54,576 nomismata, but does not specify the amounts of donatives to many others, including the patricians, senators, archpriests, priests,

monks, soldiers, and poor in Constantinople and in the provinces.[351] Another chronicler mentions Michael's gifts to churches, monasteries, hermits, poorhouses, hospitals, prisoners of war, widows, orphans, and those recently impoverished.[352] These donatives must have run into the hundreds of thousands of nomismata. Leo V (813–20) reportedly rebuilt many cities in Thrace and Macedonia, and his reconstruction appears to have been more costly than Irene's.[353]

Theophilus evidently built and spent at a rate unequaled since Justinian I, three centuries before. The discussion above has indicated that Theophilus' miscellaneous non-military expenditures totaled something on the order of ten million nomismata.[354] In twelve years he would therefore have spent nearly a million nomismata a year on what the Arabs in negotiations in 838 called his "ostentation and gift-giving."[355] Bury estimated that Theophilus spent on his buildings no less than the 23 million nomismata allegedly spent on St. Sophia apart from its decorations; but the reliability of this sum is questionable even for St. Sophia, and as an estimate of Theophilus' expenditure it is probably far too high.[356]

Still, the figures reported in an anonymous account of the decorations of St. Sophia appear to come from an actual inventory, and those that are described precisely enough to be valued (probably less than half) add up to 1,389,168 nomismata without including the cost of the workmanship.[357] This figure is comparable to the 1.44 million nomismata bullion value of the part of Theophilus' ornaments melted down by his son, and neither sum seems exaggerated. Among many other charities, Theophilus gave 7,200 nomismata every Christmas to the clergy of Constantinople.[358] Among other diplomatic outlays, he gave his embassy of 830 to Baghdad 28,800 nomismata merely to make an impressive display of wealth.[359]

After Theodora's regency, Michael III also built sizable buildings, including the Church of Our Lady of the Parus and vast and magnificent stables that he thought would assure his place in history.[360] Michael rebuilt cities as well, including Ancyra and Nicaea.[361] The total of his gifts to individuals exceeded 4,133,000 nomismata, because when Basil I asked that the gifts be repaid at a discount of 50% he collected 28,700 pounds, or 2,067,000 nomismata.[362] Presumably Basil did not recover everything he demanded, which in any case would not have included any donations to large groups or the gifts given to Basil himself.

Finally, Basil's own state spending was massive. Though he gave a donative at his accession from his personal savings (doubtless originally given him by Michael), he gave other substantial gifts later.[363] His buildings and restorations, catalogued at great length in the biography of him attributed to Constantine VII, were more extensive, though less opulent and so probably less costly, than those of Theophilus.[364] The fact that Basil needed to restore so much shows how seriously building and maintenance must have been neglected during previous reigns, when the rate of spending on such items was low.

Conclusion

Unquestionably the state expenditures of the eighth century were less than those of the ninth. Table X summarizes the estimates made above for the reigns of Constantine VI and Irene, which total 1.8 million nomismata, or between 1.4 and 2.2 million. This total would be something like two-thirds of Theodora's expenditures of 2.7 million nomismata, or between 2.3 and 3.1 million. This proportion depends only partially on the figures' margins for error, because the estimates are not independent of each other and are likely to err in the same direction. Further, every indication is that the budget before Irene was even lower than in her reign, and that the budget after Theodora was even higher than during her regency.

Overall, expenditures seem to have risen gradually throughout the eighth and early ninth centuries. They rose when Constantine V reformed the tagmata, probably rose modestly under Irene, and rose again when Nicephorus I recruited new soldiers. Michael I's extravagance was short-lived, but Theophilus raised expenditures to a new height, first by his building and then by raising the soldiers' pay. The latter measure, which Theodora naturally continued to honor, kept expenditure at a high level. Michael III's campaigns and donatives raised the level again, and Basil I's campaigns and buildings may well have raised it still further. The effects of this vast increase in spending are clearly visible in the flowering of Byzantine art and architecture in the later ninth century, and in the Empire's improving military fortunes in the same period.

Revenues

At the time of this steady rise in expenditure, which was accompanied by a rise in the surplus under Theophilus and Theodora,

the revenues were obviously increasing as well. Because Irene's average annual surplus was apparently insignificant, her annual expenditures would roughly have equaled her revenues. At 1.8 million nomismata or so, these revenues would therefore have been little more than half the 3.2 million or so estimated for Theodora's regency. The increase in revenue throughout this period, more than matching that in expenditure, could have been due to higher tax rates, an expanding economy, or greater efficiency in collecting the taxes. Evidence exists that points to all three causes.

In the eighth century, Leo III and Constantine V took a number of steps to raise their revenues. In 733, Leo raised the hearth taxes of Sicily and South Italy by a third and confiscated Papal revenues amounting to 25,200 nomismata annually.[365] In 740, when Leo rebuilt the walls of Constantinople, he financed the work by instituting the *dikeraton,* thus permanently raising the tax rates by one-twelfth.[366] In 768, Constantine began to confiscate monastic property in Constantinople, and in 772 all monastic property in the Thracesian Theme was confiscated.[367] These measures lay behind Constantine's gold surplus, which even after his reform of the tagmata totaled well over 3.6 million nomismata in 775.[368]

In 795, Constantine VI remitted to the Church the 7,200-nomisma commercia of the fair of Ephesus, and in 801 Irene apparently remitted the commercia of Constantinople, which must have been in the tens of thousands of nomismata.[369] Given the small size of the commercia in relation to the land and hearth taxes, these remissions could not have caused an enormous loss of revenue. Nevertheless, they were evidently reversed by Nicephorus in 803, the year after he took power.[370]

Between 809 and 811 Nicephorus enacted a series of sweeping financial reforms, which are described in some detail by Theophanes and have been discussed by a number of modern scholars. Nicephorus seems not to have raised any of the basic tax rates, but rather to have tried to collect in full existing taxes that had long been evaded, especially by the rich, the bureaucracy, and the churches and monasteries. To judge from the indignation felt by these groups and expressed by Theophanes, these evasions had been many and well-established, and Nicephorus was largely successful in ending them.

Curbing tax evasion would automatically have increased the state revenues, but Nicephorus also tried to increase the land tax and commercia by actually expanding cultivation and trade. By assigning both abandoned lands and their taxes to the rich, he forced the new owners

to cultivate the land in order to pay the taxes; by transferring people from every theme to the West, he expanded cultivation there; by lending the leading shipowners of Constantinople 864 nomismata each at 16.7% interest, he forced them to expand their trade in order to repay the debt plus 144 nomismata a year. Finally, and perhaps most important, by taking a new census and working against bureaucratic corruption and inefficiency, Nicephorus must have relieved ordinary taxpayers of a considerable burden of deliberate or accidental overassessment, thus reducing the incidence of default and abandonment of land. Certainly he made a point of assigning abandoned land to the landless.[371]

After Nicephorus' reign the sources make no further complaints about fiscal oppression during the rest of the century. On the contrary, they commend the financial prudence and fairness of Leo V, Michael II, and Theophilus, despite disapproving of their iconoclasm.[372] No extraordinary measures to raise revenue are recorded until after Theodora's regency. At the same time, the foregoing discussion of expenditure shows that Theophilus' revenue must have been considerably higher than Nicephorus's, while Theodora's revenue appears to have been higher still.

Michael III spent very large sums, but at the end of his reign he finally got into financial trouble. His deficit of 1.31 million nomismata a year was so immense that it probably indicates not only a great increase in spending but also a significant decline in revenue. In fact, soon after Basil I took power in 867 he heard a mass of complaints about the corruption of the tax collectors. Apparently Michael, on whose fiscal irresponsibility all sources agree, had been allowing his officials to defraud both the taxpayers and the state.

Basil took corrective measures, including a rule that the abbreviations in the tax records should be written out so that the taxpayers could read them, and is said to have ended the complaints.[373] He seems to have succeeded in restoring the state revenue fairly quickly, since he managed to spend freely on military campaigns and his many buildings without financial embarrassment. Near the end of his reign he officially baptized the Jews and so remitted their head tax, and supposedly rejected his officials' advice to take a new census on the ground that he feared the process of census-taking would invite corruption.[374] Evidently Basil found his revenue sufficient at the time.

Thus in the eighth century Leo III raised taxes and Constantine V confiscated monastic property, but they still exacted much less than

the ninth-century revenue from their subjects. Nicephorus I seems to have raised the revenue considerably by means of increased efficiency in tax collection and rather heavy-handed incentives to expand cultivation and trade. But after his reign, without further such measures, the receipts continued to grow, reaching a high point during the regency of Theodora. Though revenues probably fell somewhat under Michael III's rule because of corruption in the bureaucracy, under Basil I, with corruption brought under control, the revenues probably rose past Theorora's level. Plainly government action cannot explain the whole growth of the revenues from the eighth century through the ninth. This growth must reflect real growth in the economy: that is, in trade, agriculture, and population, all three of which contributed directly to the state revenue through the commercia, land tax, and hearth tax.

Most important of these was population, because more people naturally tended to cultivate more land and to support more trade. The series of Mediterranean-wide plagues that had begun in 541–44 came to an end with a particularly severe outbreak that reached Constantinople in 747.[375] Such plagues could cause a long-term decline in population on the order of 40%, and the last outbreak alone so depopulated the Byzantine capital that settlers had to be brought in from Greece and the Aegean islands in 756.[376] From the seventh century on, particularly until the mid-eighth century, the Persians, Arabs, Bulgarians, and Slavs not only killed people but also removed large numbers of them from Byzantine control.

After this, the Empire's population seems to have made a fairly steady recovery. By 767 the population of Constantinople was large enough to need the water of the Aqueduct of Valens, which had not been needed for almost a century and a half before that time. Evidence for the expansion of the water supply, increasing importation of food and slaves, new settlement, and overcrowding in both Constantinople and the countryside indicates that by the late ninth century the Empire's population was relatively large. By the tenth century, John Teall concluded from this evidence, "the total acreage of arable land was fully exploited, an achievement traceable ultimately to the augmentation of the labor force."[377]

The increase in population, reflected in expansion of the area under cultivation and of trade, would have begun to raise the state revenue in the late eighth century, approximately the time when other evidence indicates that the imperial budget began to expand. How much the hearth and land taxes and the other revenues would have grown in

relation to each other is problematical; the estimates suggested for Irene's reign in Table X simply follow the proportions estimated for Theodora's regency. The population and revenue apparently continued to expand throughout the ninth century.[378]

Until the mid-ninth century, this population growth took place without any great diminution of warfare or any vast territorial gains by the Empire. But the security of Asia Minor, economically the most important part of imperial territory, improved markedly beginning in the 840's, and this development would have benefited both agriculture and trade on land. These gains in agriculture and trade would in turn have increased tax receipts, especially because lands that had recently been devastated by the enemy were temporarily exempt from taxation under Byzantine law.[379] Relatively peaceful conditions would have begun to contribute to the state revenue in the regency of Theodora, when the budget seems to have reached a level not equaled earlier.

Impersonal causes, numbers, and facts should not, however, obscure the contribution made by individual men to the Empire's improving financial position. The outstanding figure was Nicephorus I, who before his accession had served under Irene as General Logothete, the chief financial official. Nicephorus' insistence on efficiency and honesty in financial administration both insured that the state profited fully from the revival of the economy and did something to further that revival. His policies were continued, apparently with some consistency, by the other emperors of the ninth century, with the exception perhaps of Michael I and certainly of Michael III.

The emperors could only have conducted their financial administration successfully with the aid of many competent officials, only a few of whom, like Theoctistus under Theodora and earlier, can be known adequately from our sources. For a state as heavily organized as Byzantium but without such modern administrative tools as double-entry bookkeeping and Arabic numerals, the task of efficiently assessing and collecting taxes, meeting financial obligations, and maintaining a sufficient cash reserve required men at all levels of government to make a constant effort.[380] The consequences when they did not make this effort can be seen in the huge budgetary deficits of Michael III, the declining revenues of the ninth-century Caliphate, and the financial ruin of the Byzantine Empire in the late eleventh century. A strong economy results in a strong state only if the government brings about that result. In the ninth century, the Byzantine government was generally equal to the task.

CONCLUSION

Though these figures from the sources and the estimates based on them are of varying precision and reliability, within broad limits they seem likely to be correct. For most purposes, broad limits are narrow enough. An average annual state revenue as low as 2.9 million nomismata or as high as 3.7 million would have essentially the same implications, especially because the revenue must have fluctuated a good deal from time to time. No estimate given here is a deliberately "liberal" or "conservative" one; indeed, it is hard to tell what a "liberal" or "conservative" estimate might be without having a suspicion of a "true" figure that is lower or higher, and that suspicion would then need justifying. Similarly, none of the estimates made here depends directly on accepting one of the conflicting modern views of Byzantine city life, trade, money in circulation, and so on; how these views by themselves could be translated into numerical estimates is, in fact, unclear. It therefore seems a fair question to ask what implications these figures and estimates might have for assessing the condition of Byzantium in the eighth and ninth centuries. In the terms of the present controversy over the Byzantine economy, are these numbers relatively high or relatively low?

At first glance, they seem extremely low. That the total revenue estimated here is lower even than the maximum estimate made by Stein and far lower than that proposed by Bury is, of course, largely an accident of the development of twentieth-century scholarship; no matter how high the budget was, some modern scholar might have guessed it was higher still. But the fact that the cash revenue of the Empire ap-

pears to have been about 15% of that of the Caliphate under Theodora, and about 5% of the larger revenue of the Caliphate under Irene, must be considered significant.[381]

Evidently the Caliphs relied less on revenue in kind than the Emperors did.[382] Doubtless the Caliphs had many other concerns besides conquering Byzantium, and Byzantium had certain defensive advantages. Still, the greater wealth of the Caliphate had highly unfavorable consequences for the Empire. In the later eighth century the largest recorded Arab field army was 95,793 men, while the largest recorded Byzantine field army was 20,000.[383] In 806 the Arabs fielded their largest known force, a stunning 135,000.[384] As has been seen, in the mid-ninth century the largest recorded Arab field army was 80,000, while the largest recorded Byzantine field army was 40,000.[385] The Arabs could raid in this period nearly anywhere they wished, including the largest cities if they made a major effort. This is, however, a fact that all scholars must concede.

Further, the fact that the Emperors relied so much on income and payments in kind seems evidence of a somewhat primitive economy, which could not support much higher taxation in gold. On the other hand, substantial revenues and payments in kind were also a feature of Roman state finance in all periods, certainly the later one. Further, most Emperors might not have thought of raising the tax rates even if this could have been done. Leo III's tax increase was inspired by a pressing need to repair the walls of Constantinople, apparently not by an awareness of what additional revenue the Empire could produce or what other uses the added revenue might have. Theophilus seems to have amassed gold simply through the good fortune of inheriting an efficient system of taxation and a sound economy; his first thought was to spend the gold on ostentation and munificence, and it was only late in his reign, in an obviously grave situation, that he seems to have come to the realization that spending money on the army might be a useful defensive measure.

Nonetheless, the fact remains that the level of cash revenue and spending before Theophilus was low in terms of the Empire's defensive needs. In the mid-ninth century, the Byzantines still raised less than half as much cash revenue per subject as the Abbasids, a proportion which suggests that the Byzantine economy was the more primitive of the two.[386] At least in the eighth century, the difficulties encountered when Constantine V amassed too much gold suggest, if they do not

prove, that the Byzantine economy would have had difficulty producing much more cash than it did for the state.[387]

The size of the civil service also seems small in relation to the sizes of the army and the population at large. A relatively small bureaucracy was again a feature of the Roman Empire of antiquity and late antiquity, periods in which the army had taken over less of the task of administration than in Byzantium. The smallness of the Byzantine civil service does not appear to have had any particularly adverse effects on the Byzantine administration. Nevertheless, it would have had a tendency to restrict education and urban life, since the civil service in Byzantium took a leading part in both, evidently to a greater extent than military officers did.

One may dispute whether the estimates suggested here for the agricultural taxes and the commercia imply that trade and industry were small in Byzantium in comparison with agriculture by pre-modern standards. Agriculture dominated all pre-modern economies and dominates many modern ones. Nevertheless, it is plain that in absolute terms trade and industry were vastly less important in Byzantium than agriculture. The state revenue from the former seems to have been around 5% of that from the latter, and even this relation may overstate the value of trade and industry, which were probably disproportionately taxed in cash because they more often dealt with cash.[388] To the extent that the dominance of agriculture in the Empire is forgotten today it should not be. Relatively small industry and trade would imply relatively small cities.

On the other hand, in some respects the estimates given here appear rather high. They indicate that Theodora's average revenue was some six times the maximum of Andronicus II, who still ruled about a third as much territory.[389] If Stein's estimate for the Empire's budget in the sixth century is accurate, under Theodora the Empire's cash revenue was almost half of the sixth-century figure, and under Irene about a quarter.[390] Considering that the Empire had lost such vast and rich territories in the meantime, both proportions are very respectable. Since the major part of the revenue in both periods came from agriculture, the cities could still have declined greatly. Nonetheless, the estimates imply that the Empire's economy was in at least as good condition in the ninth century as in the sixth, and in far better condition in the ninth than in the fourteenth.

In absolute terms, the millions of nomismata being paid to the army, spent on palaces and ornaments, or piled up in the treasury in the ninth

century must be considered large sums, as Vryonis has stressed.[391] To what extent this money economy was centered on state taxation and expenditure alone is difficult to say, though the extent was certainly considerable. Nevertheless, money paid out by the state passed into private hands at least for a time. Further, if the commercia were levied primarily on cash transactions, as seems likely, they imply a fairly large money economy in the private sector, though because the same goods could be taxed several times as they passed customs frontiers the value of the long-distance trade would have been less than ten times the value of the commercia.[392] Besides, farmers, most of whom were not paid by the state as soldiers, were able to pay substantial taxes in cash all over the Empire. Plainly a large part of the Byzantine economy was not limited to barter.

The size of the Byzantine army must also be considered large in absolute terms, and generally beneficial to the state. To put some 8% of the heads of household in the Empire under arms was an impressive accomplishment, and for this army to hold off the army of the more populous and wealthy Caliphate until it ceased to present a serious threat was a no less impressive feat.[393] Admittedly, the Empire could never have put 120,000 men into the field in one place at one time, and that figure would have overstated even the total number of effective troops available anywhere. But all muster-rolls include some soldiers who are not ready for service. The 120,000 men enrolled in the Byzantine army of the ninth century compare very favorably with the 150,000 men enrolled in the Roman army of the sixth century, which was, as Stein observed, generally inferior as a fighting force.[394]

Probably the most favorable sign for the Byzantine economy in these estimates is that the economy was steadily expanding. Admittedly, primitive and rural economies tend to survive military setbacks better than advanced and urban ones, and to recover afterwards more quickly. Most of Byzantium's economic growth was obviously a matter of simple demographic increase. But in the absence of any signs of overpopulation such demographic increase in itself may well be evidence of a healthy economy. The approximately doubled revenues of the Empire between the rule of Irene and that of Theodora, even allowing for increased efficiency in tax collection and margins for error in the estimates, represent an economic expansion over sixty years that shows that something was right with the Empire even in the beginning.

"High" and "low" are by and large modern concepts in such contexts, and unlike some modern concepts they are of limited value

in understanding what happened. If to us the size of the Byzantine army seems large, or the size of the Byzantine bureaucracy seems small, these are facts about us rather than about Byzantium; the figures—whether or not they have been deduced correctly here from the sources—were what they were, and to those accustomed to them seemed neither high nor low. The only outside standards that are properly applicable to Byzantium are those of other pre-modern states. No comparisons have been made here with contemporary Western Europe because the West, even in the Carolingian Empire, had no comparable state budget, regular army, civil service, or even state.[395] By pre-modern standards, the Byzantine Empire ranked high, and in the ninth century was advancing still higher.

Table I

Payroll of the Thracesian Theme (ca. *842*)

Title	Number	Salary	Total Pay
strategus	1	2,880 nom.	2,880 nom.
turmarchs (1 per turma: here 5,000 soldiers)	2	216	432
count of the tent	1	144	144
chartulary of the theme	1	144	144
domestic of the theme	1	144	144
drungaries (1 per drungus: 1,000 soldiers)	10	144	1,440
counts (1 per bandum: 200 soldiers)	50	72	3,600
centarch of the spatharii	1	36	36
count of the hetaeria	1	36	36
protocancellarius	1	36	36
protomandator	1	36	36
centarchs (1 per 40 soldiers)	250	18	4,500
decarchs (1 per 10 soldiers)	1,000	12	12,000
common soldiers	10,000	9 (average)	90,000
Total	11,320 men[1]		115,428 nom.[2]

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1. To arrive at the total number of men in a theme, add:
strategus and staff officers: 8
turmarchs: 1 (3 for Anatolic and Armeniac, 2 for Thracesian and Bucellarian)
for Cibyrrhaeot only, centarchs and protocarabi (ships' officers): 90
for Sicily only, Duke of Calabria: 1
other men: 1,131 x number of thousand common soldiers

2. To arrive at the total payroll of a theme in nomismata, add:
salary of strategus: 2,880 (40 lbs.), 2,592 (36 lbs.), 1,728 (24 lbs.), 864 (12 lbs.), 432 (6 lbs.), or 0
salaries of turmarchs: 216 (1,296 for Anatolic, 648 for Armeniac, 432 for Thracesian and Bucellarian)
salaries of 7 staff officers: 576
for Cibyrrhaeot only, extra pay of drungaries and pay
for Sicily only, salary of Duke of Calabria: 216 of ships' officers: 7,416
pay of other men: 11,154 x number of thousand common soldiers

Table II

Conjectural Pay Scale of Byzantine Officials (842/43)

Note: Numbers in parentheses refer to the page and line of Oikonomidès' editions of the *Tacticon Uspensky* and Philotheus. The list given here omits clerics, ex-officials, titular officials, obsolete officials, dignitaries without offices, and rankings determined by the dignity of the office-holder rather than the rank of the office.

I. 40 pounds of gold (2,880 nomismata): (47.9–49.3)
- Rector(?)[1] (see p. 28 supra)
- strategus of the Anatolics*[1]
- domestic of the Schools
- strategus of the Armeniacs*[1]
- strategus of the Thracesians*

II. 36 pounds (2,592 nomismata): (49.4–5, 49.9)
- count of the Opsician*
- strategus of the Bucellarians*
- strategus of Macedonia* (?) (see p. 27 supra)

III. 24 pounds (1,728 nomismata): (49.6–8, 49.10)
- strategus of Cappadocia*
- strategus of Paphlagonia*
- strategus of Thrace*
- strategus of Chaldia* (including revenues)

IV. 12 pounds (864 nomismata): (49.11–51.30)
- strategus of Peloponnesus* (revenues)
- strategus of Cibyrrhaeots*
- strategus of Hellas* (revenues)
- strategus of Sicily* (revenues)
- strategus of Cephalonia* (revenues)
- strategus of Thessalonica* (revenues)
- strategus of Dyrrhachium* (revenues)
- strategus of Crete[2]
- strategus of the Climata* (revenues)
- City Prefect
- domestic of the Excubitors
- Sacellarius
- General Logothete
- Quaestor
- proconsuls and prefects of the themes[1,3]
- protospatharius of the Hippodrome[1]

V. 6 pounds (432 nomismata): (51.31–55.15)
- Military Logothete[1]
- drungary of the Watch
- Logothete of the Drome
- Logothete of the Herds
- domestic of the Hicanati
- praetors of the themes
- domestic of the Numera[4]
- domestic of the Optimates
- count of the Walls
- Chartulary of the Sacellium[1]
- Chartulary of the Vestiarium
- Chartulary of the Inkwell
- Protostrator
- Protoasecretis
- drungary of the Fleet
- acting strategi (ἐκ προσώπου) of the themes
- drungary of the Aegean Sea (of the Cibyrrhaeots)
- drungary of the Gulf (of the Cibyrrhaeots)
- count of the Stable
- Special Secretary
- Great Curator
- Minister for Petitions
- (Orphanotrophus? Cf. Oikonomidès [1972], 304)
- cleisurarch of Charsianum*[1]
- cleisurarch of Seleucia*[5]
- turmarch of the Federates (of the Anatolics)[5]
- turmarch of Lycaonia (of the Anatolics)[5]
- turmarch of Sozopolis (of the Anatolics)[5]
- topoteretae of the Schools[5]

VI. 3 pounds (216 nomismata): (55.16–57.19)
- turmarchs of the Armeniacs*[1,5]
- turmarchs of the Thracesians*
- turmarch of the Opsician*[5]
- turmarchs of the Bucellarians*
- turmarch of Cappadocia*[5]
- turmarch of Paphlagonia*[5]
- turmarch of Thrace*[5]
- turmarchs of Macedonia and the Western themes*[5]
- demarchs
- topoteretae of the Excubitors[1,5]
- topoteretae of the Watch[5]
- topoteretae of the Hicanati[5]
- topoteretes of the Numera

archon of Dalmatia[4]
duke of Calabria (of Sicily)[4]
archon of Cyprus
turmarchs of the naval themes[6]
topoteretae of the Optimates and Walls

VII. 2 pounds (144 nomismata): (57.20–63.20)
asecretae[1]
protonotarius of the Drome
Master of Ceremonies
archon of the Armamentum
spatharii of the Spathariciun
counts of the tent of the themes*[1]
chartularies of the themes* and of the Drome
counts of the tent of the naval themes*[1,6]
chartularies of the General Logothete[1,4]
antigrapheis
symponus
logothete of the Praetorium
chartulary of the Anatolics*
chartulary of the Schools
chartularies of the themes*
actuarius
chartularies of the Military Logothete
chartularies of the tagmata
notaries of the Special Secretary[1]
deutereuontes
head of the Curatoria
domestic of the Hypurgia
zygostates
chrysoepsetes
chartulary of the Armamentum
xenodochi
notaries of the Sacellium
notaries of the Vestiarium
gerocomi
chartularies of the charitable institutions
imperial strators[1,5]
counts of the Schools[1]
candidati (of the Hippodrome; cf. Philotheus, 157.5)[1]
scribons
domestics of the Schools
domestics of the themes*
imperial mandators[1]
drungaries of the themes*[1,4]

VIII. 1 pound (72 nomismata): (Philotheus, 157.11–159.10)
counts of the themes*
counts of the Watch
chartulary of the Watch
counts of the Fleet
chartulary of the Fleet
chartulary of the Stable
counts of the Hicanati
chartulary of the Hicanati
epeictes of the Stable
tribunes of the Numera
chartulary of the Numera
counts of the Optimates
chartulary of the Optimates
tribunes of the Walls
chartulary of the Walls[1,5]
proximus of the Schools
centarchs of the Watch
centarchs of the Hicanati
protectors of the Schools
vicars of the Numera
vicars of the Walls
draconarii of the Excubitors
acoluthus of the Watch
protomandator of the Excubitors
protomandator of the Hicanati
protocarabi
protonotarii of the themes and of the Herds

IX. 1/2 pound (36 nomismata): (159.11–161.15)
bandophori of the Watch
bandophori of the Hicanati
eutychophori of the Schools
sceuophori of the Excubitors
laburesii of the Watch
sceptrophori of the Schools
signophori of the Excubitors
semiophori of the Watch
semiophori of the Hicanati
axiomatici of the Schools
sinators of the Excubitors
ducinators of the Watch
ducinators of the Hicanati
mandators of the Schools
protocancellarii of the themes*

optiones of the tagmata
protocancellarius of the General Logothete
protocancellarius of the Quaestor
protomandator of the Numera
protomandator of the Walls
protocancellarius of the Sacellium
centarch of the Vestiarium
protomandators of the themes*[5]
mandators and legatarii of the Excubitors
mandators and legatarii of the Watch
mandators and legatarii of the Hicanati[5]
thurori of the Palace and the Secreta
diatrechontes of the Drome
factionarii
geitoniarchs
notaries of the Factions
chartularies of the Factions
poets and musicians of the Demes
charioteers of the Factions
mandators of the Numera
mandators of the Walls
legatarius of the Vestiarium
chosbaïtae of the Vestiarium
centarchs of the strategi of the themes*
micropanitae
paraphylaces of the castra

X. 1/4 pound (18 nomismata): (161.16–20)
centarchs of the banda* (of the themes)
demotae
drungaries of the foot
cancellarii of the Secreta
topoteretae of the choirs

XI. 1/6 – 1/72 (1–12 nomismata): (161.21–22)
soldiers of the tagmata[5] (including decarchs)
soldiers of the themes*[5] (including decarchs)

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*Official whose salary is deduced from the data of Jarmī.

1. Before this office clerics, ex-officials, titular officials, or dignitaries appear in the *Tacticon Uspensky*.
2. The strategus of Crete was apparently appointed in anticipation of the island's reconquest, but the office lapsed after the failure of the expedition against Crete of 843.

3. Before this office certain officials appear in the *Tacticon Uspensky* only by virtue of their dignities; cf. Oikonomidès (1972), 302–04.
4. Before this office obsolete officials appear in the *Tacticon Uspensky;* see Treadgold (1980), 277–80.
5. See changes in the text proposed in Treadgold (1980), 287–88.
6. The naval themes of 842/43 were the Cibyrrhaeots and (nominally) Crete; see n. 2 supra.

Table III

Roll and Payroll of the Tagmata (ca. 842)

Title	Number	Salary	Total Pay
1. Schools (Philotheus, 111)			
domestic	1	2,880 nom.	2,880 nom.
topoteretae	2	432	864
chartulary	1	144	144
counts	20	144	2,880
domestics	100	144	14,400
proximus	1	72	72
protectors	10	72	720
eutychophori	10	36	360
sceptrophori	10	36	360
axiomatici	10	36	360
mandators	40	36	1,440
decarchs	400	12	4,800
common soldiers	4,000	9 (average)	36,000
Total	4,605 men		65,280 nom.
2. Excubitors (Philotheus, 111–12)			
domestic	1	864 nom.	864 nom.
topoteretae	2	216	432
chartulary	1	144	144
scribons	20	144	2,880
draconarii	100	72	7,200
protomandator	1	72	72
draconarii	10	72	720
sceuophori	10	36	360
signophori	10	36	360
sinators	10	36	360
mandators	40	36	1,440
decarchs	400	12	4,800
common soldiers	4,000	9 (average)	36,000
Total	4,605 men		55,632 nom.
3. Watch (Arithmus) (Philotheus, 115)			
drungary	1	432 nom.	432 nom.
topoteretae	2	216	432
chartulary	1	72	72
counts	20	72	1,440
centarchs	100	72	7,200

acoluthus	1	72	72
bandophori	10	36	360
laburesii	10	36	360
semiophori	10	36	360
ducinators	10	36	360
mandators	40	36	1,440
decarchs	400	12	4,800
common soldiers	4,000	9 (average)	36,000
Total	4,605 men		53,328 nom.

4. Hicanati (Philotheus, 119)

domestic	1	432 nom.	432 nom.
topoteretae	2	216	432
chartulary	1	72	72
counts	20	72	1,440
centarchs	100	72	7,200
protomandator	1	72	72
bandophori	10	36	360
semiophori	10	36	360
semiophori	10	36	360
ducinators	10	36	360
mandators	40	36	1,440
decarchs	400	12	4,800
common soldiers	4,000	9 (average)	36,000
Total	4,605 men		53,328 nom.

5. Numera (Philotheus, 119)

domestic	1	432 nom.	432 nom.
topoteretes	1	216	216
chartulary	1	72	72
tribunes	10	72	720
vicars	50	72	3,600
protomandator	1	36	36
mandators	20	36	720
decarchs	200	12	2,400
common soldiers	2,000	9 (average)	18,000
Total	2,284 men		26,196 nom.

6. Optimates (Philotheus, 119)

domestic	1	432 nom.	432 nom.
topoteretae	2	216	432
chartulary	1	72	72
counts	20	72	1,440
centarchs	100	36	3,600

protocancellarius	1	36	36
decarchs	400	12	4,800
common soldiers	4,000	9 (average)	36,000
Total	4,525 men		46,812 nom.
7. Walls (Philotheus, 119)			
count	1	432 nom.	432 nom.
topoteretes	1	216	216
chartulary	1	72	72
tribunes	10	72	720
vicars	50	72	3,600
protomandator	1	36	36
mandators	20	36	720
decarchs	200	12	2,400
common soldiers	2,000	9 (average)	18,000
Total	2,284 men		26,196 nom.
Grand Total	27,513 men		326,772 nom.

Table IV

Payroll of the Byzantine Army (ca. *842)*

Note: The figures for payrolls are approximations; their apparent precision is a result of the formulas used to estimate them.

Unit	Rank of Head	Salary of Head	Soldiers	Total Men	Payroll
Themes and Cleisurae of Asia:					
Anatolic[1]	1	40 lbs.	15,000	16,976	172,062 nom.
Armeniac[1]	3	40	9,000	10,190	104,490
Thracesian[2]	4	40	10,000	11,320	115,428
Opsician	5	36	6,000	6,795	70,308
Bucellarian[2]	6	36	8,000	9,058	92,832
Cappadocia	7	24	4,000	4,533	47,136
Paphlagonia	8	24	5,000	5,664	58,290
Chaldia	11	12[3]	4,000	4,533	46,272
Charsianum[4]	26	6	4,000	4,533	45,840
Seleucia[4]	27	6	5,000	5,664	56,994
Total Asia		264 lbs.	70,000	79,266	809,652 nom.
Themes of Europe:					
Thrace	9	24 lbs.	5,000	5,664	58,290 nom.
Macedonia	10	36 (?)	5,000	5,664	59,154
Total Europe		60 lbs.	10,000	11,328	117,444 nom.
Themes of Western Class:					
Peloponnesus	12	0[5]	2,000	2,271	23,100 nom.
Cibyrrhaeot[6]	13	12 lbs.	2,000[7]	2,361[7]	31,380
Hellas	14	0[5]	2,000	2,271	23,100
Sicily	15	0[5]	2,000	2,272	23,316
Cephalonia	16	0[5]	2,000	2,271	23,100
Thessalonica	17	0[5]	2,000	2,271	23,100
Dyrrhachium	18	0[5]	2,000	2,271	23,100
Climata	19	0[5]	2,000	2,271	23,100
Total West		12 lbs.	16,000	18,259	193,296 nom.
Tagmata:					
Schools	2	40 lbs.	4,000[8]	4,605	65,280 nom.

Excubitors	20	12	4,000[8]	4,605	55,632
Watch	21	6	4,000[8]	4,605	53,328
Hicanati	22	6	4,000[8]	4,605	53,328
Numera	23	6	2,000[9]	2,284	26,196
Optimates	24	6	4,000[10]	4,525	46,812
Walls	25	6	2,000[9]	2,284	26,196
Total Tagmata		82 lbs.	24,000	27,513	326,772 nom.
Grand Total		418 lbs.	120,000	136,366	1,447,164 nom.

1. Theme with three turmarchs.
2. Theme with two turmarchs.
3. Plus another 12 lbs. from the theme's commercia.
4. Cleisura.
5. The strategus took his salary (12 lbs.) from the theme's revenues.
6. Naval theme.
7. Marines (number does not include oarsmen).
8. All cavalry.
9. All infantry.
10. Muleteers.

Table V

Payroll of Other Military Officials (ca. *842*)

Title	Number	Salary	Total Pay
1. The Imperial Guard (Philotheus, 117)[1]			
protospatharius of the Imperials	1	864 nom.	864 nom.
spatharii of the Spatharicium	200(?)	144	28,800
candidati of the Spatharicium	200(?)	144	28,800
imperial mandators	4(?)	144	576
Total	405 men		59,040 nom.
2. The Imperial Fleet (Philotheus, 117)[2]			
drungary of the Fleet	1	432 nom.	432 nom.
counts of the Fleet	2	72	144
chartulary of the Fleet	1(?)	72	72
Total	4 men		648 nom.
3. The Imperial Stable (Philotheus, 123)[3]			
count of the Stable	1	432 nom.	432 nom.
chartulary of the Stable	1	72	72
chartulary of Malagina	1	72	72
epeictes	1	72	72
saphramentarius	1	72(?)	72
counts of Malagina[4]	4	72	288
syntrophi	40	36(?)	1,440
cellarius	1	36(?)	36
sellarii	400	18(?)	7,200
Total	450 men		9,684 nom.
4. The Metata (Philotheus, 117)			
Logothete of the Herds	1	432 nom.	432 nom.
protonotarius of Asia	1	72	72
protonotarius of Phrygia	1	72	72
diocetae of the Metata[5]	2(?)	72	144
counts[4]	2(?)	72	144
episceptetae	2	72(?)	144
Total	9 men		1,008 nom.
Grand Total	868 men		70,380 nom.

1. The "domestic of the Imperials" mentioned by Philotheus dated only from the reign of Leo VI (Oikonomidès [1972], 328).
2. The officium described by Philotheus did not yet exist in 842; see pp. 32–33 supra.
3. Officium omitted in our manuscript of Philotheus; see Oikonomidès (1972), 339 for a reconstruction.
4. Omitted in Philotheus' longest list; salary deduced by comparison with same office in the themes.
5. Omitted in Philotheus' longest list; salary deduced from position in the officium.

Table VI

Payroll of the Central Bureaucracy (ca. *842)*

Title	Number	Salary	Total Pay
1. Bureau of the City Prefect (Philotheus, 113)			
City Prefect	1	864 nom.	864 nom.
symponus	1	144	144
logothete of the Praetorium	1	144	144
judges of the Regions	12	144(?)	1,728
episceptetae	12(?)	72(?)	864
protocancellarii[1]	2	36	72
centurion[2]	1	36	36
epoptae[2]	4	36	144
exarchs and prostatae[2]	21	36	756
geitoniarchs	12	36	432
nomici[2]	12	36	432
bulotae	12(?)	36	432
(prostatae)[3]	—	—	—
cancellarii	6	18	108
parathalassites[2]	1	18	18
Total	98 men		6,174 nom.
2. Bureau of the Quaestor (Philotheus, 115)			
Quaestor	1	864 nom.	864 nom.
antigrapheis	2	144	288
scribas	1	144	144
sceptor (notary)[1]	1	144	144
libelisius (notary)[1]	1	144	144
protocancellarius	1	36	36
cancellarii	6(?)	18	108
Total	13 men		1,728 nom.
3. Bureau of the Minister of Petitions			
Minister for Petitions	1	432 nom.	432 nom.
cancellarii (?)	6(?)	18	108
Total	7 men		540 nom.
4. Bureau of the Sacellarius[4] (Philotheus, 113)			
Sacellarius	1	864 nom.	864 nom.
notaries	9	144	1,296
Total	10 men		2,160 nom.

5. Bureau of the General Logothete (Philotheus, 113-115)			
General Logothete	1	864 nom.	864 nom.
great chartularies of the Secretum	12	144	1,728
chartularies of the arclae[5]	23	144	3,312
epoptae of the themes[2]	23	144	3,312
counts of the waters[2]	2(?)	144	288
oecisticus[5]	1	144	144
(commerciarii)[3]	—	—	—
head of the Curatoria	1	144	144
count of the Lamia	1	144(?)	144
(dioecetae)[3]	—	—	—
comentianus	1	144(?)	144
protocancellarius	1	36	36
cancellarii	6(?)	18	108
Total	72 men[6]		10,224 nom.[6]
6. Bureau of the Military Logothete (Philotheus, 115)			
Military Logothete	1	432 nom.	432 nom.
chartularies of the Secretum	12	144	1,728
(chartularies of the themes)[3]	—	—	—
(chartularies of the tagmata)[3]	—	—	—
legatarii and mandators[1]	56(?)	36	2,016
optiones	28	36	1,008
protocancellarius[1]	1	36	36
(mandators)[3]	—	—	—
Total	98 men[6]		5,220 nom.[6]
7. Bureau of the Logothete of the Drome (Philotheus, 117)			
Logothete of the Drome	1	432 nom.	432 nom.
protonotarius of the Drome	1	144	144
chartularies of the Drome	23	144	3,312
episceptetae[1]	23	72(?)	1,656
hermeneutae[2]	12(?)	72(?)	864
curator of the Apocrisiarieium	1	72(?)	72
diatrechontes	24(?)	36	864
mandators[1]	46(?)	36	1,656
Total	131 men		9,000 nom.
8. The Sacellium (Philotheus, 121)			
Chartulary of the Sacellium	1	432 nom.	432 nom.
imperial notaries of the			

Secretum	8	144	1,152
xenodochi	6	144	864
zygostates	1	144	144
metretae	2(?)	144	288
gerocomi	2	144	288
chartularies of the institutions	8	144	1,152
protonotarii of the themes[7]	23	72	1,656
protocancellarius	1	36	36
cancellarii	6(?)	18	108
domestic of the Thymela[2]	1	18	18
Total	59 men		6,138 nom.

9. The Vestiarium (Philotheus, 121)

Chartulary of the Vestiarium	1	432 nom.	432 nom.
imperial notaries of the Secterum	8	144	1,152
centarch	1	36	36
legatarius	1	36	36
archon of the Mint[2]	1	36	36
exartistes[2]	1	36	36
chartulary[2]	1	36	36
curators[2]	2	36	72
chosbaïtae	2(?)	36	72
protomandator[1]	1	36	36
mandators[1]	4(?)	36	144
Total	23 men		2,088 nom.

10. The Chancery (Philotheus, 123)

Protoasecretis	1	432 nom.	432 nom.
asecretae	24	144	3,456
(imperial notaries)[3]	—	—	—
decanus	1	144(?)	144
Total	26 men[6]		4,032 nom.[6]

11. Bureau of the Special Secretary (Philotheus, 123)

Special Secretary	1	432 nom.	432 nom.
imperial notaries of the Secretum	8	144	1,152
archons of the factories (archon of the Armamentum, chartulary of the Armamentum,			

chrysoepsetes)	3	144	432
hebdomarii[2]	2(?)	144	288
meizoteri of the factories[1]	2	144	288
Total	16 men		2,592 nom.
12. Bureau of the Great Curator (Philotheus, 123)			
Great Curator	1	432 nom.	432 nom.
protonotarius[5]	1	144	144
imperial notaries[2]	8(?)	144	1,152
curators of the palaces[2]	8	144	1,152
curators of the estates[2]	5(?)	144	720
meizoterus of the Palace of Eleutherius	1	144	144
xenodochus of Sangarius	1	144	144
xenodochus of Pylae	1	144	144
xenodochus of Nicomedia	1	144	144
episceptetae	17(?)	72(?)	1,224
Total	44 men		5,400 nom.
13. Bureau of the Orphanotrophus (Philotheus, 123)			
Orphanotrophus	1	432 nom.	432 nom.
chartularies of the House	2(?)	144	288
chartularies of the Hosius	2(?)	144	288
arcarius	1	144(?)	144
curators	2	144(?)	288
Total	8 men		1,440 nom.
Grand Total	605 men[6,8]		56,736 nom.[6]

1. Omitted by the *Tacticon Uspensky;* salary deduced by comparison with same official in another bureau.
2. Omitted by the *Tacticon Uspensky;* salary deduced from position in the officium.
3. These officials are counted elsewhere.
4. The Sacellarius also had jurisdiction over all remaining officia listed here (nos. 5-13).
5. Omitted by the *Tacticon Uspensky;* salary deduced from Philotheus' longest list.
6. This figure excludes officials counted elsewhere.
7. The position in the officium is altered from Philotheus' order to reflect the situation *ca.* 842.
8. Of these, 337 earned one pound of gold (72 nomismata) or more.

Table VII

Summary of the Byzantine State Finances (842–856)

Figures are estimated annual averages, expressed in millions of nomismata rounded to the nearest 0.1 million.

Revenues:	
Hearth and land taxes, with surcharges	2.9
Other revenues	0.4
Total revenues	3.3 (2.9–3.7)
Expenditures:	
Payroll of army (1.44 million nom.)	1.4
Other military expenditures	0.8
Pay of civil service	0.5
Other non-military expenditures	0.1
Total expenditures	2.8 (2.4–3.2)
Surplus (473,000 nom.)	0.5

Table VIII

Conjectural Roll of the Army (773–842)

Note: Themes and cleisurae and tagmata are numbered in the order of their commander's rank in 842/43. These ranks are then used to refer to the themes in the table. Thus "to 1" means that at that date the unit was part of the Anatolic Theme. All figures are for numbers of soldiers except for the payroll figures at the end.

Unit	*ca.* 842	*ca.*838	*ca.* 811	*ca.* 773
Themes and Cleisurae:				
1. Anatolic	15,000*	18,000	18,000	18,000
2. Armeniac	9,000*	9,000	14,000	14,000
3. Thracesian	10,000*	8,000	8,000	8,000
4. Opsician	6,000*	4,000	4,000	4,000
5. Bucellarian	8,000*	6,000	6,000	6,000
6. Cappadocia	4,000*	(to 1)	(to 1)	(to 1)
7. Paphlagonia	5,000*	3,000	(to 2)	(to 2)
8. Thrace	5,000*	3,000	3,000	6,000
9. Macedonia	5,000*	3,000	3,000	(to 8)
10. Chaldia	4,000*	2,000	(to 2)	(to 2)
11. Peloponnesus	2,000	2,000	2,000	—
12. Cibyrrhaeot	2,000	2,000	2,000	2,000
13. Hellas	2,000	2,000	2,000	2,000
14. Sicily	2,000	2,000	2,000	2,000
15. Cephalonia	2,000	2,000	2,000	—
16. Thessalonica	2,000	2,000	2,000	—
17. Dyrrhachium	2,000*	—	—	—
18. Climata	2,000*	—	—	—
19. Charsianium	4,000*	(to 2)	(to 2)	(to 2)
20. Seleucia	5,000*	(to 1)	(to 1)	(to 1)
Total	96,000	68,000	68,000	62,000
Special Corps:				
Khurramites	—**	30,000	—	—
Tagmata:				
i. Schools	4,000	4,000	4,000	4,000
ii. Excubitors	4,000	4,000	4,000	4,000

iii. Watch	4,000	4,000	4,000	4,000
iv. Hicanati	4,000	4,000	4,000	—
v. Numera	2,000	2,000	2,000	2,000
vi. Optimates	4,000*	2,000	2,000	2,000
vii. Walls	2,000	2,000	2,000	2,000
Total	24,000	22,000	22,000	18,000
Grand Total	120,000	120,000	90,000	80,000
Payroll (in nomismata)	1,440,000	810,000	600,000	550,000

*Unit that received 2,000 new soldiers in late 839.
**Distributed among other units in late 839.

Table IX

Development of the Drungus (785–912)

Command	785	839/43	899/912
drungus (1,000)	1 chiliarch	1 drungary	1 drungary (chiliarch)
bandum (200)	—	5 counts	5 counts
100	10 hecatontarchs[1] (centarchs)	—	10 hecatontarchs (centarchs)
50	20 pentecontarchs	—	20 pentecontarchs[3] (tribunes)
40	—	25 centarchs[2]	—
10	100 decarchs	100 decarchs	100 decarchs
5[4]	—	—	200 pentarchs[4]
Total	131 officers, 1,131 men	131 officers, 1,131 men	336 officers, 1,136 men

1. Highest officer who could command cavalry. If two in each drungus commanded cavalry, the cavalry ratio would be 1:4.
2. Highest officer who could command cavalry. If one in each bandum commanded cavalry, the cavalry ratio would be 1:4.
3. Highest officer who could command cavalry. If one in each bandum commanded cavalry, the cavalry ratio would be 1:3.
4. The pentarchs' commands (and the commands of all other officers) probably included the pentarchs among the soldiers.

Table X

Summary of the Byzantine State Finances (780–802)

Figures are estimated annual averages, expressed in millions of nomismata rounded to the nearest 0.1 million.

Revenues:	
Hearth and land taxes, with surcharges	1.6
Other revenues	0.2
Total revenues	1.8 (1.4–2.2)
Expenditures:	
Payroll of army	0.6
Other military expenditures	0.6
Pay of civil service	0.4
Other non-military expenditures	0.2
Total expenditures	1.8 (1.4–2.2)
Surplus or Deficit	0.0

Table XI

Equivalences

Money:
1 nomisma (gold) = 12 miliaresia (silver)
1 nomisma = 288 folles (bronze) (middle Byzantine period)
1 nomisma = 180 folles (sixth century)
1 nomisma = 1 dinar (gold) (approximately; Arab sources often use "dinar" to mean "nomisma")
1 nomisma = 15 dirhams (silver) (approximately; Arab sources often use "dirham" to mean "miliaresion")
1 miliaresion = 24 folles
1 pound of gold = 72 nomismata (until eleventh century)
1 pound of gold = 96 nomismata (twelfth century)
1 pound of gold = 144 nomismata (early fourteenth century)
1 pound of gold = 6 pounds of silver
1 centenarion = 100 pounds of gold
1 pound of silver = 144 miliaresia
1 pound of silver = 12 nomismata
1 "pound sterling" (in Bury's work) = 12/3 nomismata
1 "gold franc" (in Andréadès' work) = 1/15 nomisma

Land:
1 modius = 0.08 hectare
1 modius = 0.2 acre
1 modius = 0.8 dönüm
1 dönüm = 0.1 hectare
1 stremma = 0.1 hectare

Grain:
1 modius = 13 kilograms

NOTES

1. This is the view of, among others, Kazhdan (1954), 164–88 and (1960), 260–70 and Foss (1975), 721–47 and (1979), 103–15.

2. This is the view of, among others, Ostrogorsky (1959), 45–66, Vryonis (1963), 291–300, and Charanis (1966), 1–19.

3. Vryonis (1967), 78–83 and especially 83; see also Vryonis (1963), 298–99; Mango (1965), 112. Mango's essay is a general one without footnotes, but he is presumably thinking of the 30,000 who were killed when Amorium fell in 838 according to Mas'ūdī (Vasiliev [1935–68], I, 332) and allowing for this figure's including refugees and outside troops as well as ordinary inhabitants.

4. Bury (1912), 219; cf. Paparrhegopoulos (1932), IV, 36–40, of which Bury cites an earlier edition. Bury's "pound sterling" represents 12/3 nomismata.

5. Stein (1919), 142.

6. Andréadès' gold franc represents one-fifteenth nomisma.

7. Stein (1924), 377–87.

8. Andréadès (1948), 77; this essay was published in 1948 but completed before 1939.

9. In a helpful discussion in April 1979, Michael Hendy informed me that his work indicates a figure of about 6 million nomismata for the budget in the sixth century, which would agree broadly with Stein. Hendy plans to include a discussion of state finance in his forthcoming book on the Byzantine economy. Jones (1964), I, 462–64 very tentatively suggested that in the sixth century "as an estimate of the gold revenue 400 *centenaria* [2.88 million nomismata] is perhaps not unreasonable." But Jones's extremely low estimate seems to be based on a misinterpretation of Procopius, *Hist. Arc.* xix. 8. Procopius says not (as Jones interprets) that the Empire's total revenues for the nine years of Justin I's reign were 4,000 centenaria, but that this was the sum that Justinian collected during that time *by illegal means* (*οὐδενὶ νόμῳ*). Such ill-gotten gains would have been in addition to the regular and legal revenues.

10. Bury (1912), 236–37. Cf. Hitti (1968), 321, who gives the latter sum as 331,929,008 dirhams (22,128,600 nomismata), excluding taxes in kind.

11. Gregoras, 317. The figure given is one million nomismata, but at this time the nomisma was half alloy; Pachymeres, 494.

12. See, e. g., Ostrogorsky (1969), 478–98.

13. Ostrogorsky (1932), 299 speaks of a living wage of 10–15 folles a day, which would be about 17–26 nomismata a year (with 180 folles to the nomisma in early Byzantine times and no work on Sundays or holidays). Jenkins (1967), 86–87 mentions a living wage of 15 folles a day, which would be about 16 nomismata a year (with 288 folles to the nomisma in middle Byzantine times and again no work on Sundays or holidays). Cf. Jones (1964), 447, who puts the cost of food alone at about 2–5 nomismata a year per person in early Byzantine times.

14. See pp. 54–55 infra.

15. See p. 59 and n. 233 infra.

16. Andréadès (1922), 14–15: "Tout de même, un budget valant plus de 3 milliards [of gold frances] au XII^{e} siècle, c'est raide." (I agree, as will appear.)

17. See p. 50 and n. 201 infra.

18. On the Byzantine monetary system in the middle period, see Grierson (1968–73), III. 1, 14–72.

19. In Treadgold (1979b), 1247, I briefly summarize the evidence that suggests the economic revival began "between 810 and the 830s."

20. For a short account of the regency, probably a bit too laudatory, see Grégoire (1966), 105–08.

21. See p. 14–15 infra.

22. See p. 31 infra.

23. Cf. Lopez (1951), 231.

24. I cannot agree with the views of Miller (1978), 171–91 concerning separate "imperial" and "public" treasuries in the middle period. The passage that Miller cites from John Cantacuzenus seems to me to refer to a single treasury with two epithets.

25. Theoph. Cont., 172; Genesius IV.11 (though I cannot accept the editors' addition of χιλιάδων to line 91, making 300,000 pounds of silver, because it disagrees with Theophanes Continuatus).

26. On the miliaresion, see Grierson (1968–73), III. 1, 62–68.

27. The apparent record for the middle Byzantine period was the reserve left by Basil II in 1025, which was 14.4 million nomismata (200,000 pounds of gold); Psellus, *Chron.* 1.31. The record for the early Byzantine period was apparently the reserve left by Anastasius I in 518, 23.8 million nomismata (330,000 pounds of gold); Procopius, *Hist. Arc.* 19.7.

28. Theoph. Cont., 253.

29. Treadgold (1979a), 190.

30. See Haldon (1979), 41–65 and Treadgold (forthcoming). On the whole debate on the themes, see Kaegi (1967), 39–53.

31. This is the view of Lemerle (1958), III, 41–70, and to some extent of Haldon (1979), 66–81.

32. Jones (1964), 415–16.

33. Of course, some imperial land could have been sold or traded to provide military lands in the places in which they were most needed, and confiscation, particularly of lands left vacant by the invasions, could have been employed as well. For an extended treatment of the whole question, see Treadgold (forthcoming).

34. Ps. -Symeon, 659; Theoph. Cont., 173.

35. On this cache, see Theoph. Cont., 256–57. On the emptiness of Michael's treasury, see p., 58. infra.

36. For a description of the payment of officers in the capital in Lent of 950, see Liudprand VI.10. This schedule evidently held good for the themes in the ninth century, because the payroll of the Armeniac Theme was on its way when it was captured by the Arabs on the first Saturday of Lent in 811, and another payroll was captured by the Bulgarians not long before Easter of 809; Theophanes, 489 and 484–85.

37. See p. 78 infra.

38. Ibn Kh., 84.

39. *De Cer.*, 493–94.

40. *De Cer.*, 494. The reason for the omissions can hardly be that the themes omitted are those whose strategi paid themselves from local revenues, listed at *De Cer.*, 697, because the latter passage refers to commanders, not to soldiers, and the commanders of Seleucia, the Cibyrrhaeots, and the Aegean Sea were paid as usual but are omitted from the earlier passage. The themes omitted are simply some lower-ranking ones that Constantine did not bother to list.

41. Brooks (1901), 70–72, and most recently Miquel (1967), xvii (cf. xxii on Ibn Al-Faqīh, xxi on Ibn Khurdāhbih, and xxviii on Qudāmah). For the date, see Treadgold (1980), 269–70.

42. Bury (1912), 226 n. 1.

43. Cf. Ibn Al-F., 73–76 with Qudāmah, 196–99.

44. Qudāmah, 199. He is wrong, however, in saying that this is the total for "eleven" themes, because there were only ten. Here Qudāmah has included the Optimates both among the tagmata and among the Asian themes, but added them into the total only for the tagmata. On the Optimates, see p. 29 n. 100 infra.

45. Ahrweiler (1960), 3 and n. 6 estimates a theme at about 2,000 to 3,000 men on the basis of a formula from "Constantine Porphyrogenitus." But this formula, as Constantine clearly states, is repeated from the sixth-century *De Magistratibus* of John Lydus; see *De Them.*, 63, and cf. Lydus I.46. The formula has no value for middle Byzantine times.

46. *Tact. Usp.*, 47–55; for the date, see Oikonomidès (1972), 45–47.

47. Though the *Tacticon* makes Cappadocia a theme and Jarmī (Ibn Al-F., 75) makes it a cleisura, the difference is easily explained by assuming that the province was raised in rank between the dates of the two documents.

48. Qudāmah, 196–97 and Ibn Kh., 81–82; on the problems connected with these texts, see Treadgold (1980), 270–77.

49. Treadgold (1980), 273–77; for the view, which this correspondence seems to rule out, that Qudāmah's figures are erroneous, see Haldon (1978), 78–90.

50. Ibn Kh., 84. This figure, like the figure of 70,000 for the Asian themes given by Qudāmah, 199, seems to exclude irregular troops. On irregular troops, see pp. 33–34 infra.

51. *De Adm. Imp.* 52.12–15; thus about 880 not poor and 1,120 "poor."

52. On the two drungaries, see Treadgold (1980), 278. On the command of a drungary of a theme, see p. 19 infra. The drungaries of the Watch and the Imperial Fleet were evidently drungaries of a different sort.

53. Oikonomidès (1972), 46–47.

54. *De Cer.*, 652–53, lists 15 dromons with 70 fighting men each for the Cibyrrhaeots, 10 dromons with 70 fighting men each for Samos, and 7 dromons with 70 fighting men each for the Aegean Sea. Here I do not count the oarsmen, because Ibn Khurdādhbih's figures refer only to soldiers. I adopt the working assumption that for this major naval expedition virtually all the forces of the Imperial Fleet and the naval themes were called up, though of course only a fraction of the land forces were.

55. See pp. 70–71 and n. 277 infra.

56. Ibn Kh., 84; Qudāmah, 196. In his translations, de Goeje misinterprets "quntarkh" (read "qantarkh") as "hecatontarch."

57. Philotheus, 109–11 (on 111.5, see p. 22 n. 71 infra).

58. Leo, *Tactica* IV. 33, 705B-C.

59. On the turmarchs, see Treadgold (1980), 280–84.

60. On the Duke of Calabria, see *Tact. Usp.*, 57.14 and *De Adm. Imp.*, ch. 50. 88–89.

61. Ibn Kh., 84 and 85.

62. *De Cer.*, 696–97; Bury (1912), 225 n. 2. In Table IV I have listed the salaries of the two cleisurarchs as 6 lbs., since all cleisurarchs were paid 5 lbs. under Leo; because Charsianum had been raised from a cleisura to a theme by Leo's time, its commander's salary was then 20 lbs. The ranks, salaries, and numbers of troops of the Asian and European strategi and cleisurarchs follow each other in Table IV with the following exceptions: (1) The strategus of the Armeniacs outranks the strategus of the Thracesians but has 9,000 troops to the latter's 10,000 (the salaries are the same). (2) The Count of the Opsician outranks the strategus of the Bucellarians but has 6,000 troops to the latter's 8,000 (the salaries are the same). (3) The strategus of Cappadocia outranks the Strategus of Paphlagonia but has 4,000 troops to the latter's 5,000 (the salaries are the same). (4) The cleisurarch of Charsianum outranks the cleisurarch of Seleucia but has 4,000 troops to the latter's 5,000 (the salaries are the same).

(5) The strategus of Thrace outranks the strategus of Macedonia but has a salary of 24 lbs. to the latter's 36 (the numbers of troops are the same; on the latter salary, see p. 27 and n. 89 infra).

63. Philotheus, 161.

64. *De Cer.*, 662.

65. With this grade added, the intervals between grades are: 10%, 33%, 50%, 50%, 33%, 50%, 50%, 50%, 33%.

66. Philotheus, 111.

67. Leo, *Naumachica* 1.8, p. 20. The centarch was the captain of the ship and the protocarabi were its pilots.

68. See p. 18 n 54 supra.

69. That their salaries were not less, even though their supplementary pay is less than that of the counts in the pay list just quoted, is plain from Liudprand VI. 10, who lists the protocarabi last in a group that received from 7 lbs. to 1 lb. in 950. Since he was in Constantinople, he must mean the protocarabi of the Imperial Fleet, but the others were presumably paid the same.

70. Leo, *Tactica* IV. 33, 705D and IV.12, 704A. Leo notes that the bandum was the unit commanded by a count (IV. 10, 701D).

71. Oikonomidès (1972), 100 n. 67 believes that the mandators have simply dropped out of our text of Philotheus; but I do not see why they should be missed more than the bandophori, and they would appear to be in excess of the nine grades that Philotheus says there were. The meriarch was a real grade, even though a sort of turmarch; Oikonomidès (1972), 108 n. 65.

72. Leo, *Tactica,* IV. 6 and 12–36, 701A–B and 704A–08A.

73. On the muster-rolls, see Haldon (1979), 50 and 63–64.

74. Anon. Vári, 50: . . . *ὅπως γνωσθῶσιν ὅσοι μεν προς το ταξειδευσαι σύνεισι τῆ ἁγία αὐτοῦ βασιλεία, ὅσοι δὲ ὑπελείφθησαν ὅἰκοι, ὅσοι δὲ καὶ ἔφυγον, πρὸς τούτω καὶ τίνες μεν ἐν ἀληθεία δι' ἀσθενείαν υπελείφθησαν τίνες δὲ καὶ τεθνήκασι, καὶ τίνες καλῶς τοὺς τε ἵππους καὶ ται πολεμικας πανοπλίας κέκτηνται* . . . .

75. *Vita Euthym. Jun.*, 172. Cf. Haldon (1979), 47–48.

76. Qudāmah, 196.

77. Ibn Kh., 85.

78. *Vita Lucae,* 200.5–12. Cf. St. Joannicius, enrolled at age 19 in the Excubitors; *Vita Ioannicii,* 334A.

79. Dölger (1924–32), no. 1578. Note the reference to a mixture of young and old soldiers at Leo, *Tactica* IV. 40, 708B–C.

80. See Russell (1958), 25, Table 18 and 27, Table 24, and Russell (1948), 189–91, tables 8.12, 8.13, and 8.14.

81. See Treadgold (1980), 273–77.

82. Liudprand, VI. 10.

83. The promotion of the Drungary of the Imperial Fleet is traced in the table of Oikonomidès (1972), 304 (third line).

84. Cf. *Tact. Usp.* 47.15, Philotheus 143.21, and *Tact. Ben.* 245.30 (dating between 934 and 944).

85. On the evolution of the title of magister from the ninth century to the tenth, see Oikonomidès (1972), 294.

86. See Oikonomidès (1972), 302–04 and Philotheus, 101–03.

87. On the Syncellus, see Oikonomidès (1972), 308; on obsolete offices in the *Tacticon*, see Treadgold (1980), 277–80.

88. See Treadgold (1980), 284–85.

89. The emendation would be from λ′ (30) to κ′ (20) at *De Cer.* 697.1;cf. p. 20 n. 62 supra.

90. Oikonomides (1972), 41–42, referring to *Tact*] *Usp*] 51.30 and 55.15.

91. Note, however, that the three turmarchs of the Anatolics had special titles (turmarchs of the Federates, Lycaonia, and Sozopolis), higher rank, and thus a salary of 6 lbs. instead of the 3 lbs. earned by other turmarchs; see Treadgold (1980), 280–84.The Duke of Calabria, under the Strategus of Sicily, is among those earning 3 lbs.

92. *Tact. Usp.*, 63.20, 61.26, 63.2, and 63.4. Note that the Cibyrrhaeots' drungaries of the Aegean Sea and of the Gulf (cf. Treadgold [1980], 278) would thus have received not 2 but 6 lbs. in accordance with their higher rank.

93. On the ἄπρατοι, see Oikonomidès (1972), 42, 67, and 290, where Oikonomidès gives the meaning "functionnaires sans dignité." Oikonomidès does not indicate divisions in the remainder of the list of Philotheus and does not try to explain Philotheus' repetition of the word ἄπρατοι at 159.10 and 161.5.

94. Philotheus, 157.11 and 159.9.

95. Philotheus, 159.25 and 161.13. On the protomandators, whose entry at Philotheus 159.33 is mutilated, see Treadgold (1980), 285 n. 63.

96. Philotheus, 161.16.

97. Here I would restore the reading of the MS. and put the soldiers of the tagmata before those of the themes; see Treadgold (1980), 285 n. 64.

98. See p. 3 and n. 13 supra.

99. On the arms and siteresia of the Tagmata, see Nicephorus, *Apol.*, 556B-C (describing how the tagmatic troops cashiered by Irene in 788 lost these and hence their livelihood). On the monthly character of the siteresia at a later date, see *De Off. Reg.*, 94: Οἱ περὶ την βασιλικὴν ἐθνικοί τε καὶ Ῥωμαῖοι οι φυλάσσοντες. . . λαμβανέτωσαν τὰ σιτηρέσια αὐτῶν ἀνελλιπῶς καθένα ἕκαστον μῆναν καὶ τὰ κορτασματα καὶ τὰς ρόγας αὐτῶν σώας. Though some have taken this passage to mean that the rogae of the tagmata were paid monthly, I believe that the words καθενα εκαστον μηναν apply only to the siteresia. The tagmata certainly received their rogae at the same times as the themes in the earlier period (see n. 101 infra)—that is annually or even less frequently (see pp. 14–15 supra).

100. On the ambiguous status of the Optimates, who are mentioned by Qudāmah under both themes and tagmata (197 and 198, each time with the same strength of 4,000 men), cf. Oikonomidès (1972), 339.

101. On the quarters of the tagmata, see Bury (1911), 52. Paying the tagmata and the themes together was a long-established custom by 917; see Sym. Log., 881.

102. Qudāmah, 196–97 and 199.

103. See Nicephorus II, 12.24–27, and pp. 80–81. infra.

104. Howard-Johnston (1971), 100–04. On the basis of the same data Howard-Johnston also concludes that the figures of Jarmī for the total strength of the thematic armies must be more or less correct (ibid., 133–40).

105. Zepos, *Jus*, I, 255–56; cf. Ostrogorsky (1969), 286–87. The value of the military lands is discussed further on pp. 62–64 infra.

106. Bury (1912), 227.

107. Vryonis (1963), 298–99, on the basis of the amounts of two army payrolls in 809 and 811, Ibn Khurdādhbih's report that "soldiers" earned between 12 and 18 nomismata a year about 842, and the salaries of the strategi under Leo VI (886–912), estimated that the Asian themes were paid a minimum of 690,300 nomismata, and perhaps between 840,000 and 1,260,000. Despite the problems that result from combining data of these different dates without adjustment (and especially from confusing an army on the Strymon with the Theme of Strymon, which did not exist in 809), Vryonis' estimates seem roughly right—and show how little difference even sweeping conjectures can make.

108. See pp. 14–16 supra.

109. This follows from the comparison of Jarmī's salaries with those listed in *De Cer.*, 696–97; see p. 20 supra.

110. On the centarch of the spatharii and count of the hetaeria, see p. 22 supra. At this date, Cyprus was evidently a Byzantino-Arab condominium; see Oikonomidès (1972), 353–54 and n. 372.

111. Philotheus, 117.19–24.

112. Ibn Kh., 81.

113. *De Cer.*, 652.

114. Philotheus, 117, putting the topoteretae in the plural as in the manuscript (see Treadgold [1980], 273–77 and 287–88).

115. Zepos, *Jus*, I, 223.

116. Cf. *Tact. Usp.*, 53 with Philotheus, 145.

117. See Ahrweiler (1966), 97–99.

118. See pp. 34–35 infra.

119. *Tact. Usp.*, 63.26; though no chartulary is mentioned, this part of the *Tacticon* is so mutilated that the omission proves nothing; see Treadgold (1980), 284–85. On the counts, see Ahrweiler (1966), 75–76.

120. See the analysis of Oikonomidès (1972), 338–39.

121. Philotheus, 117.25–31 and Oikonomidès (1972), 338. A seal of an episceptetes of the Metaton of Phrygia of the second half of the ninth century is in Zacos-Veglery, no. 3115. Though Asia and Phyrgia could admittedly have had

more than one dioecetes and count each, these officials can scarcely have been so numerous as to have a significant effect on the total payroll.

122. Qudāmah, 199.

123. See p. 32 supra.

124. Philotheus, 161.15 and 18; see also Treadgold (1980), 286.

125. I have computed this total from the numbers in Ibn Kh., 77–80, though at 77 three forts seem too few for Macedonia, and I would emend to thirteen (note that Thrace had ten).

126. See p. 21 supra.

127. Bury (1912), 292 and n. 2.

128. These totals are computed from *De Cer.*, 652–53.

129. On ships' officers, see p. 22 supra.

130. *De Cer.*, 651–56 and 667–69. I follow the calculations of Bury (1912), 231 and n. 1.

131. Leo, *Tactica* XII.51, 820C–D.

132. Qudāmah, 193 (the dinar was roughly equivalent to the nomisma).

133. The campaigns against the Arabs were against Crete in 843, at Mauropotamum *ca.* 844, in Sicily in 846, against Damietta in 853 and in 853/54 (the latter not certain), and against Anazarbus in 855; see Vasiliev (1935–68), I, especially 442–43. On the campaign against the Bulgarians, soon after 846, see Runciman (1930), 88–89.

134. Ibn Kh., 83.

135. See p. 29 and n. 99 supra and Haldon (1979), 45 and n. 73.

136. Ibn Kh., 85.

137. Oikonomidès (1972), 316–18 (on the Special Secretary, in charge of the factories) and 338 (on the Logothete of the Herds, in charge of the metata).

138. See Dölger (1927), 60–62, Ostrogorsky (1927), 60–61, and Bréhier (1949), 261–62, and their references. I am not aware of the existence of any adequate general study of corvée labor and taxation in kind in Byzantium, though at least some materials for such a study exist.

139. *De Cer.*, 457–87.

140. *De Cer.*, 673–76; at 676–78 it is noted that other equipment was supplied from the warehouses of the Vestiarium.

141. *De Cer.*, 462.

142. Stein (1919), 142.

143. Bury (1912), 221.

144. Lemerle (1967), 81; *De Cer.*, 692.15–19: 'Ο *θέλων λενέσθαι εἰς τὴν μεγάλην ἑταιρειαν, εἰ μέν ἐστιν ἡ ῥογα αυτου μεχρι νομισμάτων μ παρέχει λίτρας ις′ εἰ δὲ πλείονα ρογαν ἐπιδητεῖς κατὰ αναλογίαν τῆμ ῥόγας ὀφειλει ἀναβιβάδεσθαι καὶ το τίημα, ἤγουν τὰ ζ′ νομίσματα, λίτραν α′*

145. *De Cer.*, 692–94.

146. Lemerle (1967), 77–100.

147. This definition follows from the penalty for seduction prescribed by the *Ecloga* of Leo III (Zepos, *Jus* II, 57): ". . . if the seducer is rich (*ευποροs*), let

him pay the girl he seduced one pound of gold; if he is poorer, let him pay half his fortune; and if he is utterly destitute and without property, let him be flogged, tonsured, and exiled."

148. *De Adm. Imp.*, 50.235–56. Because the man was a cleric and clerics were not supposed to hold this rank, Leo VI refused this offer and only consented in return for a payment equivalent to 60 pounds. The salary of one pound mentioned in this transaction was plainly not the salary for all protospatharii, since the minimum payment of 12 to 18 pounds did not entitle the purchaser to any salary; *De Cer.*, 692.10-14.

149. See Philotheus, 226.24–26. The relevant donative here would probably be two-thirds of the one and one-sixth nomismata given to a candidatus of the Lausiacus.

150. See Oikonomidès (1972), 291, 301, and 327–28.

151. Cf. Oikonomidès (1972), 290.

152. See pp. 46–47 infra. On the Curator of the Mangana, created by Basil I (867–86), see Oikonomidès (1972), 318.

153. For more detailed descriptions, see Bury (1911), 69–105 and especially Oikonomidès (1972), 309–23 and his references.

154. Jones (1964), I, 572–86. These figures do not cover the entire bureaucracy, but probably represent the bulk of it.

155. Liudprand, VI. 10.

156. For the military officials, see Table V, omitting those who earned less than 72 nomismata; the sellarii served outside the capital, but earned less than 72 nomismata in any case.

157. Philotheus, 179 (at both 179.11 and 179.17 the topoteretae should be in the plural; Treadgold [1980], 273–77).

158. See pp. 32–33 supra.

159. Philotheus, 209.

160. Philotheus, 169.1–8 and 181.20–30; cf. Oikonomidès (1972), 168 n. 147.

161. Oikonomidès (1972), 295–96.

162. See Oikonomidès (1972), 321 and Bury (1911), 72 and 73. Since both exarchs and prostatae evidently had a salary of 36 nomismata, their distribution is irrelevant for calculating the payroll, and they are listed together in Table VI.

163. See Bury (1911), 72 and 73. For the ninth century, I am dubious about the idea of Oikonomidès (1972), 312 and n. 141 that these episceptetae administered imperial domains, which are unattested for most of the departments to which they belong; I prefer the idea of Bury that they were simply inspectors. I believe that Oikonomidès (1972), 321 is mistaken when he identifies the nomici with the guild of the tabularii, because the nomici were not simply notaries but government officials. The mention of the Nomicus of the Region of Sphoracius in Script. Incert., 350 indicates that these nomici were assigned to the regions.

164. See Oikonomidès (1972), 312, whose interpretation of Philotheus, 113.23–25 is surely right, though Bury (1911), 86 is vague on the subject. The

evidence of *De Cer.*, 698 shows that the Sacellarius (and General Logothete, Sacellium, and Special Secretary) had mandators in the tenth century, but their absence from Philotheus, who mentions many other sorts of mandators, implies that they did not yet exist in 899.

165. See Bury (1911), 87; cf. Oikonomidès (1972), 313, who thinks they were assigned to the dioceses, which were not quite the same as the themes.

166. Philotheus, 159.33–34 (for the Excubitors and Watch) and 183.11–12 (for the Numera and Walls). For a demonstration that these messengers numbered two per bandum, see Treadgold (1980), 273–277 and n. 29.

167. For the seals, see Zacos-Veglery no. 2648 (ninth century) and Laurent (1952) no. 232 (early eleventh century; since this official is not an "imperial episceptetes" he does not look like an administrator of an imperial domain).

168. *De Cer.*, 273 and 274.

169. Note that the protonotarii of the themes are found in two places in the longest list of Philotheus, at 155.5 (as spathars) and 159.10 (as ἀπρατοι); their place in the officium of the Chartulary of the Sacellium (121.6) corresponds only to the first of these. The higher rank looks as if it applies to the protonotarii after they had supplanted the proconsuls and prefects of the themes as heads of the civil administration, while the lower rank applied to the protonotarii before their importance grew. The *Tacticon* does not mention them in the higher rank; the part of the *Tacticon* corresponding to their lower rank is missing and must be supplied from Philotheus. I have supposed that the lower rank was that of 842, and have altered Table VI accordingly.

170. These were the xenodochi of Theophilus, Sampson, Eubulus, Irene, Narses, and St. Irene (*De Cer.*, 173), and the gerocomi of Cyphe and Eugenius (*De Cer.*, 180 and 556); cf. Janin (1969), 558–62 (nos. 4, 5, 6, 8, 15, and 23) and 554–55 (nos. 6 and 12).

171. Cf. Bury (1911), 94 and Oikonomidès (1972), 315.

172. Cf. Bury (1911), 97 and Oikonomidès (1972), 316 (suggesting that the curators may have been in charge of estates belonging to the Vestiarium; but such estates are apparently not attested elsewhere).

173. Bury (1911), 100 and especially Oikonomidès (1972), 317 and 318.

174. I have compiled this list from Janin (1964), 121–153, omitting palaces that do not seem to have been in operation at this time or do not seem to have been true palaces. Curators of Hormisdas, Pege, and Hieria are attested; see Ševčenko (1965), 564–74 and Bury (1911), 102.

175. See Zacos-Veglery, nos. 2421 and 3014 for Cromna and Athens (the latter name is doubtful), Ševčenko (1965), 564–74 for Chios and Tzurulum, Philotheus, 233.7 for the Curator of the Estate, and Ibn Al-F., 73.

176. See Treadgold (forthcoming). In 867, when Basil I acquired from the Patriarch Ignatius the lands of the Mangana, this private holding of one man, then used exclusively to provide food for imperial banquets, represented so great a proportional increase in the imperial estates that Basil put it under an independent Curator of the Mangana, who ranked just after the Great Curator

(see n. 200 infra). Even under Leo VI, the private holdings of the widow Danelis in the Peloponnesus were, according to Constantine VII, scarcely smaller than the imperial estates (Theoph. Cont., 320–21).

177. Here I follow the suggestion of Bury (1911), 77 that the Minister for Petitions had clerks, though he is not given an officium in Philotheus. Otherwise, neither the *Tacticon* nor Philotheus seems to mention any subordinates for this minister. I would follow the suggestion of Oikonomidès (1972), 322 that the ministers for petitions of Sicily and Cephalonia mentioned on seals were probably *ad hoc* appointments and do not imply that each theme always had its own minister for petitions.

178. Bury (1911), 75–76.

179. Bury (1911), 87 and Oikonomidès (1972), 314.

180. Bury (1911), 95 and Oikonomidès (1972), 315.

181. Cf. Bury (1911), 104–05 and Oikonomidès (1972), 319, neither of whom takes note of the plurals.

182. *De Adm. Imp.*, 43.42; the interpreter of lines 137 and 170 also seems to have been an Armenian interpreter, perhaps the successor of the first one; see also Theoph. Cont., 383–84.

183. Cameron (1976), especially 249 on their payment.

184. Bury (1911), 105–06 and Oikonomidès (1972), 326–27.

185. Cameron (1976), 20.

186. Bury (1911), 124–28.

187. On the eunuchs of the Palace, see Bury (1911), 120–28 and Oikonomidès (1972), 299–301 and 305–07.

188. Oikonomidès (1972), 308, correcting Bury (1911), 115–16, who put the creation of this office too late.

189. Bury (1911), 117 and Oikonomidès (1972), 311.

190. Bury (1911), 117–18 and Oikonomidès (1972), 337–38. Bury notes that *De Cer.*, 478–79 implies that the stablocometes in the Protostrator's officium numbered three, but the numbers of the other two kinds of subordinates are unknown.

191. Bury (1911), 118–19 and Oikonomidès (1972), 309.

192. See p. 3 n. 13 supra.

193. On the praetors, see Leo, *Tactica* IV. 31, 705A-B. This passage seems to exclude the suggestion of Oikonomidès (1972), 343-44 that the praetors might have been not judges but governors of junior rank; note that their rank in *Tact. Usp.*, 53.3 corresponds almost exactly to the "protospatharii and judges" mentioned by Philotheus, 147.18.

194. See pp. 58 and 60 infra.

195. On corvée labor, see p. 36 n. 138 supra.

196. Grabar (1957), 208–14.

197. Treadgold (1979a), 192–93.

198. See Philotheus, 225–31. Though these donatives generally followed rank rather than office, there was a special rank classification for them. Philo-

theus gives 20 nomismata as an example of a Brumalia donative for the class including the Rector, whose salary was at least 2,880 nomismata, and 9 nomismata as an example for the class including the strategi, whose salaries ranged between 864 and 2,880 nomismata; examples for petty officials and dignitaries go as low as one-third nomisma. Each Deme received a mere 4 nomismata for its treasury, and the soldiers were not on the list at all. The donatives given on coronation anniversaries left out many of those included at the Brumalia. Such donatives were obviously insignificant in comparison with the payrolls.

199. Theoph. Cont., 106–07.

200. Theoph. Cont., 337; cf. Bury (1911), 101–02 (corrected by Oikonomidès [1972], 318, who by noting that the Palace of Eleutherius was not originally under the Curator of the Mangana clears up the obscurity mentioned by Bury). Constantine, who is always eager to praise Basil, may have passed over similar arrangements that predated Basil's reign. For further remarks on the Mangana, see Lemerle (1977), 273–283.

201. Stein (1919), 155. Stein apportioned the expenditures as follows, in millions of nomismata:

Army and military expenses	5.0
Subsidies to barbarians	0.25
Civil service	1.0
Court, etc.	0.75
Total	7.0

Stein observed (*ibid.*, 143) that the sixth-century army was not much larger than the ninth-century one (150,000 soldiers instead of 120,000) but far more expensive because it was not supported by military lands.

202. Bury (1912), 220–21.

203. Ibn Kh., 83–84.

204. Nicephorus, *Brev.*, 76 reports that wheat was then sold at 60 modii for a nomisma. The usual price was about 12 modii for a nomisma; Ostrogorsky (1932), 321–22.

205. Scylitzes, 411–12 (= Cedrenus, II, 529–30).

206. Dölger (1927), 56. I leave out one corrupt entry that yields no satisfactory meaning.

207. Dölger (1927), 57. The table does not seem to reflect any further decline in the value of the nomisma, probably because the devaluation was not legally acknowledged.

208. Dölger (1927), 53.

209. Theoph. Cont., 53–54 records that in 821 Michael II temporarily remitted one of every two miliaresia of hearth tax in the Opsician

and Armeniac themes as a reward for their loyalty during the civil war. I do not believe that this implies a uniform rate of two miliaresia, as some have supposed (e.g., Bury [1912], 213 and n. 3), but rather a rate divisible by two miliaresia, which is compatible with both Ibn Khurdādhbih and the tax table of 1073.

210. On the surcharges and the formulas, see Svoronos (1959), 81–83.

211. Ibn Kh., 83. For a fragmentary eleventh-century cadaster, see Svoronos (1959), 1–166.

212. Cf. Charanis (1966), 1–9.

213. Russell (1958), 148 Table 152.

214. Russell (1958), 53.

215. Pounds (1974), 142–43.

216. McEvedy-Jones (1978), 107, 113, and 135, estimating 4.0 million for the area of modern Italy, 0.2 million for Albania, 0.8 million for Greece, 0.3 million for Turkey in Europe, and 6.0 million for Turkey in Asia. Though they do not give full references, they generally seem to eager to estimate the absolute minimum allowed by the evidence.

217. Russell (1958), 148 Table 152, and 7 tables 1 and 2.

218. Russell (1961), 265–74.

219. Güriz (1974) 74 Table 2. The area of Turkey in 1952 was very approximately that of the ninth-century Empire, with Turkey's extra land in the East making up for the Empire's extra land in the West.

220. Svoronos (1956), 331–32. Hiberon had 22,066 modii, 167 hearths, and 724 people.

221. Schilbach (1970), 67–70; cf. Svoronos (1976), 52 n. 6. Ostrogorsky (1966), 232 very cautiously says that "the normal size of an adequate peasant holding" could vary "from less than 100 to even more than 200 *modioi* of arable."

222. I summarize here the contents of a most helpful letter from Professor Lefort of July 18, 1980. Besides unpublished documents, he cites *Actes d' Esphigménou,* ed. J. Lefort (Paris, 1973), no. 8, 66–72.

223. Pounds (1974), 53 and 213.

224. That is, 194,519,400 dönüm (19,451,940 hectares) for 2,527,800 farming families; Güriz (1974), 74 Table 2.

225. Cooper (1977), 168–72.

226. For the terms of such tax exemptions and reductions, see Ostrogorsky (1927), 70–79.

227. See Treadgold (1979b), 1259–66.

228. This calculation is based on the approximate equality in area between the ninth-century Empire and post-1939 Turkey, which has a total of about 7.7 million hectares or 970 million modii. This area can then be substituted into line 2 of the table on p. 58 supra. Note that in comparison to this total for land the number of hearths makes little difference, even if it is doubled or tripled.

That the total of 20 million nomismata is absurdly too high should go without saying.

229. On the commercia in general, see Antoniadis-Bibicou (1963), especially 107–39.

230. *De Cer.*, 696–97; cf. Philotheus, 105.7-9 and Oikonomidès (1972), 349 (for the creation of Mesopotamia). The Strategus of Chaldia received ten of his twenty pounds of salary from his theme's commercia, which doubtless totaled far more than that (see n. 232 infra).

231. Theophanes, 469.

232. Ibn Ḥawqal, translated in Vasiliev (1935–68), II.2, 414–15 and 416–17. Of the commercia of Trebizond Ibn Ḥawqal says only that they were always less than 1,000 pounds of gold (72,000 nomismata); in fact, they cannot have been much more than those of Attalia and were more likely less.

233. Benjamin, 13. A variant in Benjamin's text makes this the *daily* revenue, for an annual revenue of 5.5 million old nomismata which the other figures for commercia show is absurd. This variant was used by Paparrhegopoulos (1932), IV, 36–40 and Bury (1912), 219 to arrive at their high estimates of the total budget. The textual problem is explained by Sharf (1971), 158, n. 4 (to p. 136), who however adopts the variant on the peculiar ground that as an annual income this sum "would hardly call for comment."

234. Gregoras, II, 841–42. The actual figures are 30,000 and 200,000, but by 1348 the nomisma was at least half alloy (see n. 11 supra).

235. Nesbitt (1977), 115–17.

236. See p. 49 supra.

237. The importance of these is emphasized by Andréadès (1948), 80–81, without much justification. On Byzantine mines, see Vryonis (1962), 1–17; the silence of the sources is deafening.

238. Ibn Al-F., 72–73. On the small size of the ninth-century imperial estates, see n. 176 supra.

239. See Dölger (1929–30), 450–57 for the best available discussion.

240. Theophanes, 487.

241. Ibn Kh., 83.

242. Baron (1957), 322-23 and n. 3.

243. Zepos, *Jus* I, 222-26; note that the marines of the Imperial Fleet did not yet exist in 842 (see pp. 32–33 supra). See also the discussion in Haldon (1979), 41–65, especially 41–42.

244. See pp. 29–30 supra.

245. Ostrogorsky (1932), 314 (1 nomisma at the devalued standard, which equals 0.75 old nomisma).

246. All the cavalry of the tagmata had squires according to Ibn Kh., 81–82 (on this passage, see p. 17 supra). Whether all the cavalry of the themes had squires is uncertain, but many must have. On the other requirements of a soldier, see p. 36 supra.

247. Leo, *Tactica,* IV.1, 697D-700A. On the question of who actually owned and worked the land that supported a cavalryman, see Kaegi (1967), 39–53 and Haldon (1979), 41–65.

248. E. g., *Jus,* I, 198–204, discussed in Treadgold (forthcoming).

249. See p. 57 supra.

250. Here I estimate 2.5 million rural households with an average holding of about 50 modii each; see pp. 54–57 supra.

251. Here I add the 136,366 men in Table IV to the 60,000 oarsmen and 435 ships' officers estimated on pp. 34–55 supra.

252. See p. 13 and n. 32 supra.

253. Kondov (1974), 97–109, putting the average between 54 and 67.5 kilograms (4.2-5.2 modii) of wheat to the modius of land. If the data of Lefort are accurate even for some farms (see p. 56–57 supra), they would seem to exclude the average of 3.5 modii of wheat from one modius of land suggested on not very convincing grounds by Svoronos (1959), 141 and (1976), 57–58 and n. 32. Such a rate of productivity would appear insufficient to allow families to live on holdings of the size that Lefort found in Macedonia.

254. Ostrogorsky (1932), 39–23.

255. Cf. Ps.-Sym., 713. To save this whole sum from military pay alone would have taken 24 years on the improbable assumption that none of the pay was ever spent.

256. Andréadès (1948), 78–79.

257. Kennedy (1981), 78. Prices were no higher in the Caliphate than in Byzantium, to judge from the wages of 1 or 2 dirhams a month (less than 1 or 2 nomismata a year!) that Kennedy mentions for unskilled laborers who worked on the construction of Baghdad. Such workers may have received their food in kind, and could hardly have supported families.

258. Cf. Michael Syr., 95 (Mu'taṣim's and Afshin's force in 838) with p. 72 and n. 297 infra (a Byzantine army at Dzimon, possibly also in 838).

259. I have calculated from the figures of McEvedy-Jones (1978) that in 842 the Empire controlled about 0.8 million square kilometers and the Caliphate about 5 million (counting North Africa and Turkestan as lost). Their population estimates for the year 800 and the territories held in 842 add up to about 8 million for the Empire and 21 million for the Caliphate.

260. Ibn Ḥawqal cannot be considered trustworthy when he says, citing Arab soldiers, bandits, and ransomed prisoners, that the Empire's revenue about 970 was much less than half that of the Fatimid Caliphate; Vasiliev (1935–68), II, 413–14 = Ibn Ḥ., 192. According to him, of the Fatimid possessions the revenue of North Africa in 971 was between 700,000 and 800,000 dinars, the revenue of Sicily was large (the number has dropped out of our text), and the revenue of Egypt in 970 was over 3,400,000 dinars (Ibn Ḥ., 95, 129, and 161); this would imply that even in 970, when the Empire's revenue was certainly larger than under Theodora, it was well under 2.5 million

nomismata. But even though this figure cannot be taken literally, in 970 the Byzantines' revenue probably was smaller than the Fatimids'.

261. Theophanes, 381.

262. Theophanes, 443 and Nicephorus, *Brev.*, 76; see Treadgold (1979b), 1261 and n. 56.

263. Cedrenus, II, 16.

264. Theophanes, 476.

265. Theophanes, 494.

266. See p. 10–11 supra.

267. See p. 14 supra.

268. Ps.-Sym., 659–60; Theoph. Cont., 173 and 255, says 300 pounds of gold, which seems to be an error (possibly a deliberate one further to denigrate Michael) for 1,300.

269. Theoph. Cont., 255–56.

270. Theoph. Cont., 256–57.

271. Theophanes, 447.

272. Theophanes, 447–48.

273. For examples of actual field armies, see pp. 72–73 infra.

274. See p. 73 infra.

275. For the date, see Treadgold (1979a), 180–83.

276. Theoph. Cont., 125; Genesius, III. 6.

277. On the Climata, see Treadgold (1980), 278 and n. 32; on Dyrrhachium see Oikonomidès (1972), 352 and Treadgold (1980), 279.

278. The first attestations are conveniently noted in Oikonomidès (1972), 350–52.

279. The special force of Tessaracontarii assembled by Michael II *ca.* 828 to clear the Aegean islands of Arabs were apparently regular soldiers paid the special campaigning pay of 40 nomismata. In any case, they did not remain as a separate unit. See Theoph. Cont., 81 and Genesius, II.13.

280. Theophanes, 486: . . . *προσέταξε στρατεύεσθαι πτωχοὺς καὶ ἐξοπλίξεσθαι παρὰ τῶν ὁμοχώρων, ἀρέχοντας καὶ ἀνὰ ὀκωκαίδεκα ἡμίσους νομισμάτων τῷ ξημοσίῳ, καὶ ἀλληλεγγύως τα δημόσια.*

281. See Ostrogorsky (1927), 22–25.

282. I therefore disagree with Haldon (1979), 50–51 and n. 87, who believes that "this was a measure designed to counter the reduction in military manpower through the impoverishment of the soldiers in the *katalogoi*. . . ." Haldon's interpretation, which distorts the plain meaning of the text, seems to stem from his difficulty in believing that Nicephorus greatly expanded the army with untrained men; yet this is what someone must have done at about this time, though the rout of the Byzantine troops on the Strymon and at Sardica in 809 shows the dangers of such a policy (see Theophanes, 484–85). Before these defeats, in which thousands died, Nicephorus may well have been trying to add more than 6,000 men in his three new themes.

283. Theophanes, 486: επι τας Σκλαυινιας. See Charanis (1946), 75–92 and Oikonomidès (1972), 350 and 352; in my opinion the letter of Michael II to Louis the Pious of 824 is referring to Thessalonica as a theme in 823, since he mentions it together with the themes of Thrace and Macedonia (Mansi, XIV, 418C-D).

284. On the Hicanati, see *Vita Ignatii,* 492B.

285. Oikonomidès (1972), 349.

286. See Treadgold (1980), 286–87

287. The "seven themes" of Asia attested in 838 seem to have been all the military commands that faced the Arabs then; *Acta Martyr. Amor.,* 65.

288. Though some have conjectured that Crete was a theme in the eighth century, this conjecture seems untenable; see Treadgold (1980), 278–79. On the date of the creation of the Watch, see p. 77 n. 314 infra.

289. Theophanes, 449. στρατεύματά τε ἐποίησε κατὰ θέμα πολλὰ και τὰ τάγματα ἐπηύξησεν ὅθεν κινηθέντες οἱ τῶν θεμάτων ἄρχοντες εἰσῆλθον πάντες σὺν πολλῷ πλήθει λαοῦ αἰτονμενοις Κωνσταντῖνον τὸν υἱὸν αὐτοῦ εἰς βασιλέα.

290. See pp. 73–74 and n. 301 infra.

291. Theophanes, 447–48.

292. Theophanes, 452.

293. *Vita Joh. Gotth.,* 168 C. On the reliability of this source, see Huxley (1977), 161–69.

294. Theophanes, 471.

295. Theoph. Cont., 55–56 (cf. *ibid.,* 53–55); Genesius, II.5.

296. Theoph. Cont., 113.

297. Genesius, IV. 14; Theoph. Cont., 177. Since this "second battle of Dazimon" appears to be simply a retelling of the battle of Dazimon of 838, the figure perhaps belongs to that date; see Treadgold (1979a), 180–83.

298. Theophanes, 451.

299. *Vita Philareti,* 125–27 (at 127.3 and 5, for ἅρμα(τα) read ἅρμα(τα) and translate "military equipment"); the passage records that the mustering was conducted to prepare for an expedition against the Arabs. The only such expedition recorded near this time was that against Adata in 785; see Brooks (1900–01), 740. The earlier Arab raid which began Philaretus' ruin was evidently that of 782 (*ibid.,* 737–39); the Byzantine expedition must then have preceded the marriage of Philaretus' granddaughter to Constantine VI in 788.

300. *Mirac S. Dem.,* 230. 20–21. On the date of the events in this passage, see Charanis (1970), 229–47.

301. *Vita Joannicii,* 334A.

302. Theophanes, 489.

303. If it had been 9 nomismata (1/8 pound), the pay of the 14,000 common soldiers of the Armeniacs would by itself have exceeded 93,600 nomismata,

and if it had been 4 nomismata (1/18 pound), not even paying the officers at the 842 pay scale would make up the 93,600.

304. The pentecontarchs would presumably have earned 12 nomismata each, the decarchs 9 or 6 nomismata.

305. *Vita Philareti,* 126–27.

306. See pp. 89–90 infra.

307. See p. 14 supra.

308 See pp. 10–11 supra.

309. See Sym. Log., 793 for the number of the original arrivals.

310. On the duration and extent of the revolt, see Treadgold (1979a), 180–83.

311. Ostrogorsky (1969), 208–09, stresses that the Arab campaign of 838 "made an overwhelming impression in Byzantium."

312. See Lilie (1977), 7–47, who makes a generally persuasive case that the Thracesian Theme dates back to the seventh century.

313. Ostrogorsky (1969), 158 and n. 2.

314. Haldon (1977). I disagree, however, with Haldon's conclusion, also expressed in Haldon (1978), 83 and n. 15, that Irene formed the tagma of the Watch (Arithmus). This conclusion is based on Theophanes, 462, who states that in 786 Irene cashiered soldiers of the tagmata recruited by Constantine (described as *των σχολαριων τε και εκσκουβιτορων και των λοιπων ταγματων* at *ibid.*, 461.20–21) and recruited "her own force" (*στρατον ιδιον*). Haldon concludes that this new force was the Watch, whose Drungary is first attested in 791 (Theophanes, 466). The natural interpretation, however, is that after Irene had dismissed the disloyal soldiers of the existing tagmata she enrolled in those same units soldiers loyal to herself; the improbable alternative is to assume that Irene left major gaps in the ranks of the Schools, Excubitors, Numera, and Walls. In any case, the unique Latin names of the Watch (*Vigilia*) and some of its officers (*labaresii, ducenatores*) show its antiquity, and a seal of a topoteretes of the Arithmus has been dated to the first half of the eighth century (Zacos-Veglery, no. 1690; nos. 2144 and 2458 are seals of drungaries of the Watch dated to the second half of the eighth century and to 750–850). In a period of such scanty sources the first literary attestation of an office means little. Cf. the remarks of Bury (1911), 60–61.

315. See p. 67 supra.

316. Oikonomidès (1972), 353 and 349.

317. See p. 30 supra.

318. Theoph. Cont., 265: . . . *τοὺς στρατιωτικοὺς καταλόγους ἐλαττωθεντας ἐκ τοῦ περικοπῆναι τὰς διδομένας τούτοις φιλοτιμίας καὶ δόγας και δογας χαι τα βασιλιχὰ σιτηρέσια διὰ νεῶν συλλογῆς τε χαὶ εηλογῆς καὶ δια τῆς τῶν δεόντων παροχῆς τε καὶ επιδοσεως ἐρρωσεν.*

319. Ostrogorsky (1969), 226–27.

320. See p. 23 supra.

321. Oikonomidès (1972), 348 and 353–54. The elevation of Charsianum from a cleisura to a theme would have raised the salary of its commander by 1,296 nomismata.

322. Oikonomidès (1972), 353; on archons, see pp. 32 and33–34 supra.

323. See p. 20 supra.

324. Leo, *Tactica* XVIII. 149,988A.

325. Leo, *Tactica* IV.12, 704A.

326. See Treadgold (1980), 273–77 for the comparison between Philotheus and Jarmī.

327. Leo, *Tactica* IV.13, 704A, etc. That the command of the decarch did not include the decarch is proved by the fact that there were not just 720 pentarchs but a full 800.

328. Nicephorus II, 12.24–27.

328. Nicephorus II, 12.24–27.

329. See pp. 29–30 supra.

330. *Vita Philareti,* 127.

331. *De Adm. Imp.,* 50.92–166. These changes would appear to have resulted in certain themes' no longer having an even number of thousand soldiers and in the abolition of the drungus as a territorial unit, though it remained as a military unit for campaigns. Leo's separation about 899 of the Theme of Samos from the 1,000-man Theme of the Aegean Sea evidently resulted in themes of 600 and 400 soldiers (three and two banda) respectively; in 911–12 Samos sent 700 soldiers and officers to Crete (a three-bandum naval theme would have had 718) and the Aegean Sea sent 490 (a two-bandum naval theme would have had 482); see *De Cer.,* 653 and, for the date of the creation of Samos, Oikonomidès (1972), 352 (though on the interpretation of the Drungary of the Gulf here, see Treadgold [1980], 278). In any case, the legislation and military handbooks of the tenth century show important changes in the army that this is not the place to discuss. Note that the lowering of the commanders' salaries (p. 20 supra) would have subtracted only 45 pounds of gold (3,240 nomismata) from the payroll. By Liudprand's time the highest salaries seem to have been returned to their former level, since he mentions grades of 24 and 12 rather than 20 and 10 pounds, while the lower salaries of 6, 3, 2, and 1 had been supplemented by new grades of 7, 5, and 4 pounds; Liudprand, VI. 10.

332. Theoph. Cont., 64 and Genesius, II.6.81 Cf. p. 34 supra and the figures cited by Ahrweiler (1966), 91–92 and n. 1, who however gives no reference for the 120 dromons sent to Italy in the early eighth century. The 2,600 chelandia of Constantine V mentioned by Theophanes, 437 (not 2,500 as Ahrweiler says) were probably not true ships but barges (so Lampe [1961], s. χελάνδιον); still, they are an indication of considerable naval power.

333. See pp. 72–73 supra, where the evidence suggests a modest increase in field armies.

334. The campaigns were in 781 against the Arabs, again in 781 against the rebel Elpidius in Sicily, in 782 against the Arabs, in 783 against the Slavs, in 790 against the Arabs (a naval campaign), in 791 against the Bulgarians, again in 791 against the Arabs, in 792 against the Bulgarians, in 795 against the Arabs, in 796 against the Bulgarians, and in 797 against the Arabs. The references are conveniently available in Speck (1978), 116–17, 122, 123–26, 128–30, 218–19, 238–39, 239, 243–45, 259–60, 274–76, and 295. Speck (*ibid.*, 546–47 n. 278) considers the campaign of 785 against the Arabs a minor and localized one.

335. Bury (1911), 106–08 and Oikonomidès (1972), 327–28. The evidence for the existence of the Hetaeria before Michael III is dubious: Cedrenus, II, 53 = Scylitzes, 13, cited by Oikonomidès, is a very late source capable of using the word loosely or anachronistically; *Tact. Usp.*, 63.30 mentions πρωτομανδάτωρες τῆς εταιρείας, but these do not correspond to any known officers of the Imperial Hetaeria, and since they appear in the most corrupt part of the *Tacticon* (cf. Treadgold [1980], 284–85 seem likely to be a confusion and misplacement of the protomandators and counts of the hetaeria of the themes (cf. Philotheus, 111.2 and 4).

336. Cf. the remarks on tax revenue, pp. 86–90 infra.

337. Theoph. Cont., 259; note also the mention of siteresia for these judges.

338. Philotheus, 149.17 and 151.26. The judges mentioned *ibid.*, 147.18 correspond to the praetors of *Tact. Usp.*, 53.3.

339. Bury (1911), 101–02 and Oikonomidès (1972), 318.

340. Theophanes, 412; cf. p. 87 infra.

341. Theophanes, 440; Nicephorus, *Brev.*, 75.

342. Theophanes, 444; on the panic, see p. 67 supra.

343. Theophanes, 449.

344. *Vita Theoph. Conf.*, 391.

345. Theophanes, 457 and 467; on Irene's church building and commissioning of art, see Cormack (1977), 40–41.

346. The years were 782–84 and 798–801, and the tribute was apparently 70,000 nomismata at the Byzantine standard or 90,000 dinars at the (lower) Arab standard, due twice a year; see Brooks (1900–01), 738 and 739 (the latter giving the amount actually paid in the first installment as 64,000 Byzantine nomismata, 2,500 Arab dinars, and 30,000 pounds of goats' wool, the whole evidently considered equivalent to 70,000 nomismata) and 739–40 (the truce was probably broken by the Byzantines' failure to pay the tribute). See also Dölger (1924–32), nos. 340 and 352.

347. Ostrogorsky (1969), 182 and n. 4.

348. Theophanes, 482.

349. See p. 74 and n. 302 supra and Theophanes, 484–85 (the lost payroll of the army on the Strymon was 1,100 pounds = 79,200 nomismata).

350. See Theophanes, 481 and (for Patras and Sparta), Lemerle (1963), 9 and 10. "Andrasus" was no doubt the ancient Adrassus in Isauria.

351. Theophanes, 493–500, especially 494.

352. Script. Incert., 335–36.

353. Theoph. Cont., 30.

354. See pp. 75–76 supra, indicating that Theophilus would have spend this sum over and above Theodora's rate of about 100,000 nomismata a year (1.2 million for 12 years)—though the latter amount is not worth counting in view of the lack of precision in the estimates. Theophilus' somewhat smaller surplus would have tended to cancel out his somewhat smaller revenue.

355. Theoph. Cont., 131 (φιλοτιμιας ενεκα και δωρεας). The Arabs allegedly put the sum spent by Theophilus at 100,000 pounds of gold (7.2 million nomismata), which can hardly be considered reliable but actually is of the right order of magnitude.

356. Bury (1912), 221 and n. 1; cf. *Narr. de S. Soph.,* 102.

357. *Narr. de S. Soph.,* 94–101. Preger (1901), 472 argues that this section derives from an inventory.

358. Theoph. Cont. 106–07.

359. Theoph. Cont., 96; for the date, see Treadgold (1979a). 176–77.

360. For the church, see Mango (1958), 180–83; for the stables, see Ps.-Sym., 666–67 and Sym. Log., 825–26.

361. See Charanis (1966), 11–12.

362. See p. 68 and n. 269 supra.

363. Theoph. Cont., 256, 316–17, and 322.

364. Theoph. Cont., 259–60, 319, and especially 321–41. Of course, Basil's reign was longer. He appears sometimes to have built with reused materials; cf. Sym. Log., 843. But Theophilus may have done the same.

365. Theophanes, 410. This may mean that the Italian hearth tax had been three miliaresia for a hearth without oxen and was raised to four to be uniform with the rest of the Empire; cf. the tax table reproduced on p. 53 supra.

366. Theophanes, 412. Cf. pp. 53–54 supra.

367. Theophanes, 443 and 445–46.

368. See pp. 67 and 77 supra.

369. Theophanes, 469 (on Ephesus) and 475 (on Constantinople); on the latter, cf. Theodore, *Epistolae,* 929B-933C, and on the amount of Constantinople's commercia, see pp. 59–60 supra. Bury (1912), 2–4 and 212 supposed that Irene abolished an urban land tax and income tax. But by the word πολιτικοί φόροι Theophanes probably means simply "city taxes," that is, the commercia on sales paid at Constantinople, while Theodore's description of travelers' being stopped to pay duties on goods points to the commercia collected at the customs frontiers that surrounded the capital; see pp. 58–59 supra.

370. Cf. Theoph. Cont., 8; this is the interpretation of Bury (1912), 212–13.

371. Theophanes, 486–89. See Treadgold (1979b), 1262-64 for an analysis. Nicephorus was settling transients on land in Thrace as early as 807 with an eye to increasing the tax revenue; Theophanes, 482–83.

372. Genesius, I.16; Theoph. Cont., 54 and 87–88.

373. Theoph. Cont., 259–61.

374. Theoph. Cont., 341–42 and 346–48.

375. Theophanes, 422–24.

376. Russell (1958), 41–42; Theophanes, 429.

377. Teall (1959), 87–139, especially 100–07 and 131–34 (quotation from p. 131).

378. I would therefore differ with Charanis (1966), 17, who concludes, "A decline [in population] set in in 541 and this decline continued, or at the most there was no appreciable increase, down to about the middle of the ninth century." This seems to put the demographic recovery somewhat too late. By contrast, Ostrogorsky (1931), 233 suggested that in comparison with the early Byzantine period the Empire was well-populated even in the seventh and eighth centuries, though the population continued to rise into the tenth century, when signs of land-hunger appeared among the wealthier classes.

379. See Ostrogorsky (1927), 70–79.

380. Cf. the remarks in Treadgold (1979b), 1259–66.

381. Cf. tables VII and X with p. 2–3 supra.

382. See p. 64 supra. Admittedly, however, the caliphs' budgets also included important revenues in kind; see Bury (1912), 236–37 and Hitti (1968), 320–21.

383. Cf. Brooks (1900–01), 738 (Hārūn's army in 782) with p. 72 and n. 294 supra (Constantine VI's army in 797).

384. Brooks (1900–01), 745. Though the Arab source, Tabarī, specifies that the figures for 782 and 806 included only regular soldiers, Kennedy (1981), 77–78 plausibly supposes that volunteers were included as well.

385. See nn. 258 and 297 supra.

386. According to the estimates of McEvedy and Jones (see n. 259 supra), which are probably somewhat too low for all areas at the time, the Caliphate had about 21 million people and the Empire about 8 million. The revenue of the Caliphate was equivalent to about 22 million nomismata (see p. 3 and n. 10 supra) and that of the Empire was about 3.3 million nomismata (see Table VII). These figures indicate that the Caliphate raised about a nomisma per subject and the Empire less than half a nomisma per subject. The more likely figure of 10 million people in the Empire (see pp. 54–55 supra) indicates a cash revenue of about a third of a nomisma per subject—but for comparison with this a higher estimate should probably be used for the population of the Caliphate than 21 million, and thus a lower revenue per person. In terms of territory, the Empire seems to have raised about as much cash revenue per square kilometer as the Caliphate (4 nomismata or so; cf. n. 259 supra).

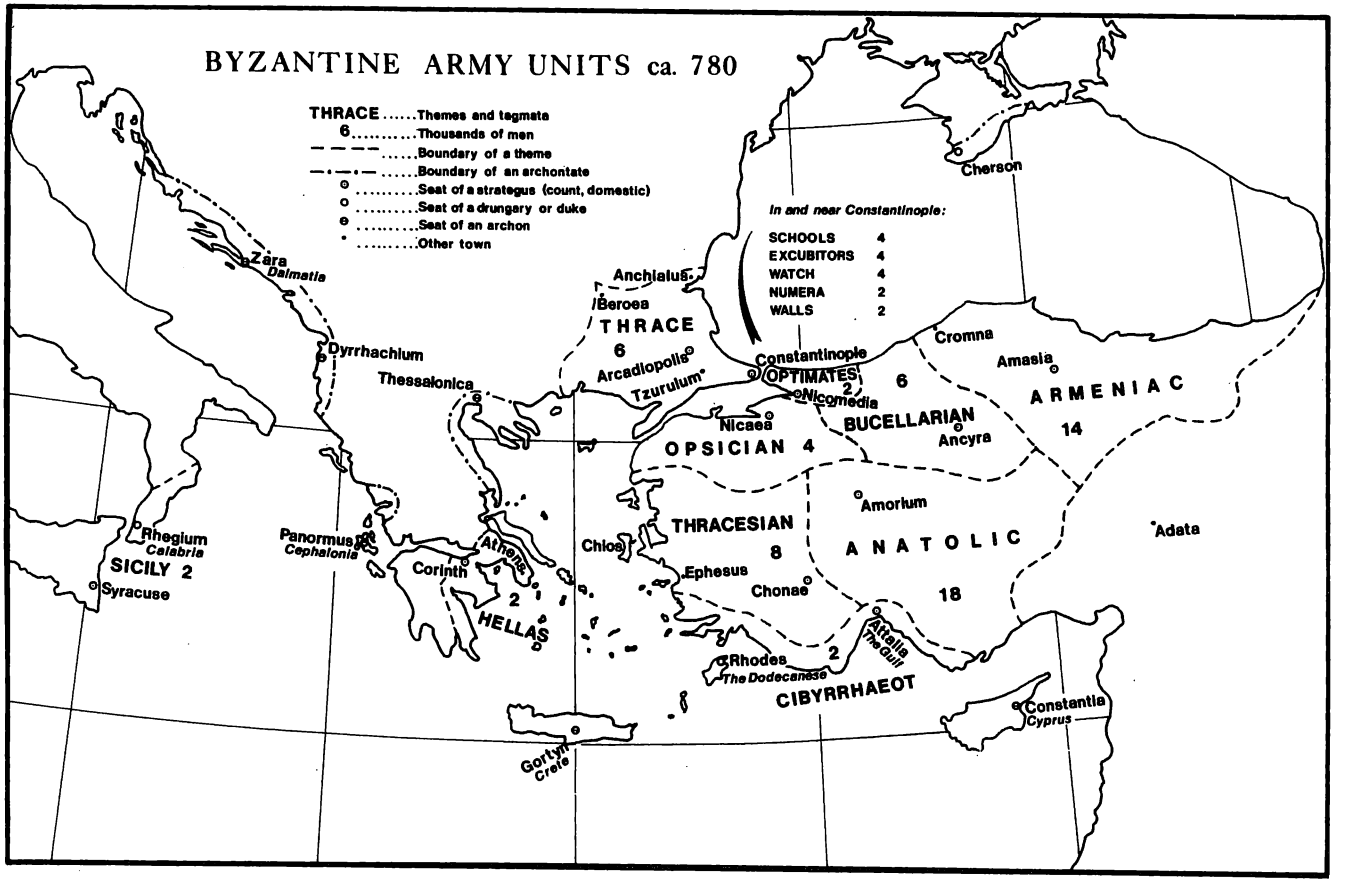
387. Admittedly, we have no satisfactory data on the Empire's supply of gold in the eighth or the ninth century. My impression is that the Empire's money supply gradually rose and approximately kept pace with the expansion of the economy. This rise might have occurred in a variety of ways, including a favorable net balance of foreign trade (or at least net importation of gold from

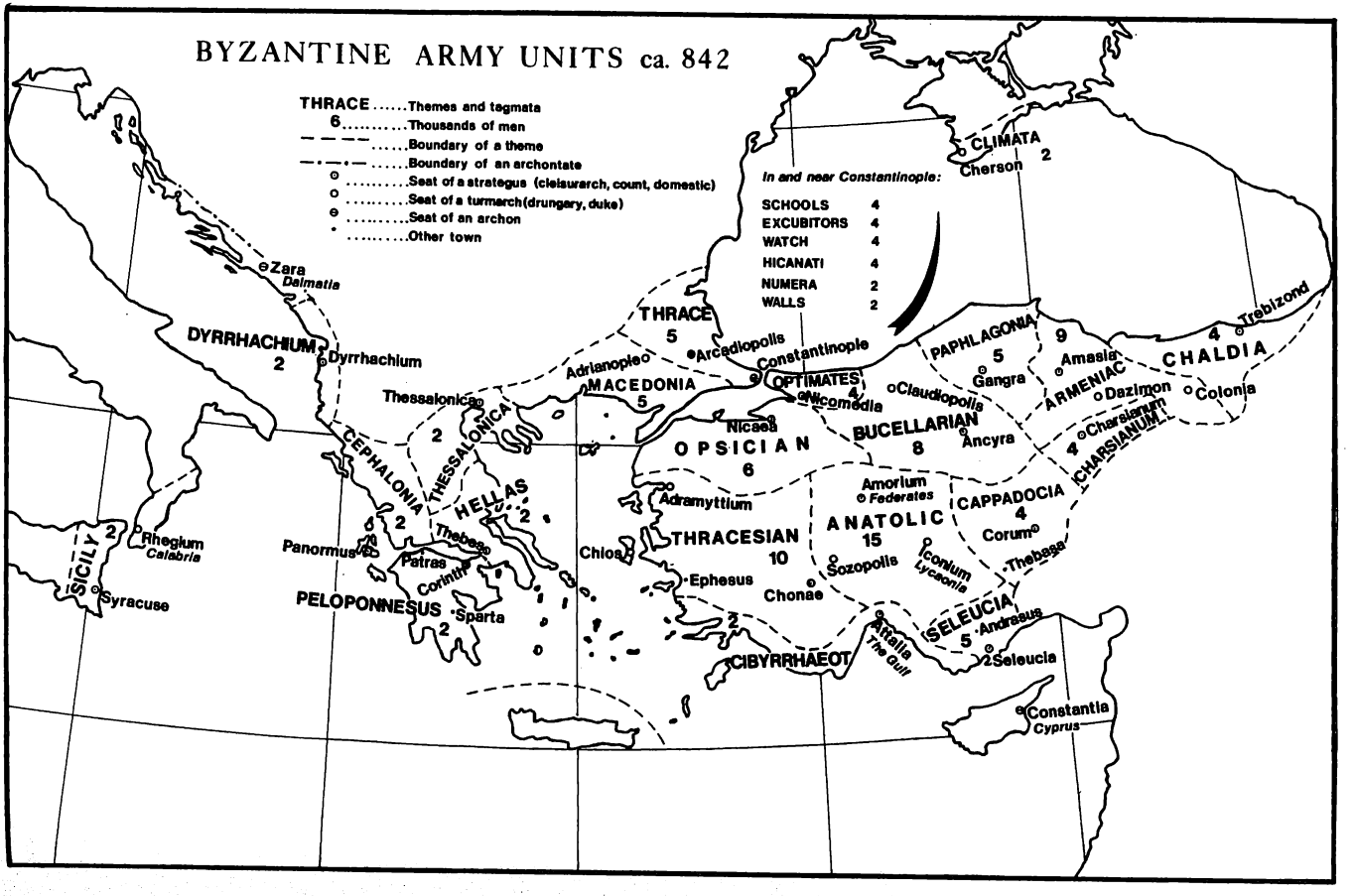
the West and the Caliphate, which used mainly silver money), the melting down under the iconoclast emperors of gold used in images or held by monasteries, and increased trade and rising military pay. The very unsatisfactory evidence on the gold supply of the Mediterranean area in the Middle Ages is collected and discussed by Lombard (1974), 195–235.

388. Cf. pp. 58 and 60 supra.
389. Cf. Table VII with p. 3 supra.
390. Cf. tables VII and X with n. 201 supra.
391. See pp. 1–2 and n. 3 supra.
392. See pp. 58–59 supra.
393. See p. 63 and n. 251 supra.
394. See Stein (1919), 143.
395. Cf. Barraclough (1976), 58–62.

A Note on the Maps

The justification for the troop strength shown for each army unit is given at pp. 16–18 supra for 842 and pp. 69–72 supra for 780. In most cases the borders and capitals shown for the themes follow Pertusi (1952), 114–83. Note, however, that the borders shown for the Bucellarians, Armeniacs, Charsianum, and Cappadocia reflect the situation before the changes made under Leo VI and described in *De Adm. Imp.*, 50.92–110. Though Pertusi conjectures that Ephesus was the capital of the Thracesians, I can see no cogent reason for rejecting the statement of Ibn Al-Faqīh that it was at "Kaniyus," evidently Chonae (Ibn Al-F., 74). (The question is discussed by Foss [1979], 195–96, who adopts in his text "the *communis opinio*" that the capital was at Ephesus while expressing well-founded doubts in an appendix.) For the seats of turmarchs, see Treadgold (1980), 280–84. On the Cibyrrhaeots' Drungary of the Gulf, see Treadgold (1980), 278. Theophanes, 454.19 indicates that in 780 the Cibyrrhaeots' other drungary was not the later Drungary of the Aegean Sea but the Drungary of the Dodecanese, whose seat would probably have been Rhodes, since it was much the most important town in the Dodecanese. On similar grounds, I have tentatively shown Rhegium as the capital of Calabria, Zara of Dalmatia, Gortyn of Crete, and Constantia of Cyprus simply because they were the principal towns of those districts.


BYZANTINE ARMY UNITS ca. 780
THRACE.....Themes and tagmata
6.....Thousands of men
.....Boundary of a theme
.....Boundary of an archontate
.....Seat of a strategus (count, domestic)
.....Seat of a drungary or duke
.....Seat of an archon
.....Other town
In and near Constantinople:
SCHOOLS 4
EXCUBITORS 4
WATCH 4
NUMERA 2
WALLS 2
Cherson
Zara
Dalmatia
Anchialus
Beroea
THRACE
6
Dyrrhachium
Thessalonica
Arcadiopolis
Tzurulum
Constantinople
OPTIMATES
2
Nicomedia
Cromna
Amasia
6
ARMENIAC
14
BUCELLARIAN
Ancyra
Nicaea
OPSICIAN 4
Amorium
Adata
Rhegium
Calabria
SICILY 2
Syracuse
Panormus
Cephalonia
Corinth
Athens
2
HELLAS
Chios
THRACESIAN
8
Ephesus
Chonae
ANATOLIC
18
Attalia
The Gulf
Rhodes
The Dodecanese
2
CIBYRRHAEOT
Constantia
Cyprus
Gortyn
Crete


BYZANTINE ARMY UNITS ca. 842
THRACE .....Themes and tegmata
6.....Thousands of men
.....Boundary of a theme
.....Boundary of an archontate
.....Seat of a strategus (cleisurarch, count, domestic)
.....Seat of a turmarch (drungary, duke)
.....Seat of an archon
.....Other town
In and near Constantinople:
SCHOOLS 4
EXCUBITORS 4
WATCH 4
HICANATI 4
NUMERA 2
WALLS 2
CLIMATA 2
Cherson
Zara
Dalmatia
DYRRHACHIUM 2
Dyrrhachium
THRACE 5
Arcadiopolis
Constantinopie
Adrianople
MACEDONIA 5
OPTIMATES 4
Nicomedia
PAPHLAGONIA 5
Gangra
Amasia 9
Trebizond 4
CHALDIA
ARMENIAC
Dazimon
Colonia
Claudiopolis
Thessalonica
THESSALONICA 2
Nicaea
OPSICIAN 6
BUCELLARIAN 8
Ancyra
Charsianum 4
CHARSIANUM
CEPHALONIA
Adramyttium
Amorium Federates
ANATOLIC 15
CAPPADOCIA 4
Corum
HELLAS 2
Thebae
Patras
Corinth
Chios
THRACESIAN 10
Ephesus
Sozopolis
Iconium Lycaonia
Thebaga
Chonae
SICILY 2
Rhegium Calabria
Syracuse
Panormus
PELOPONNESUS 2
Sparta
SELEUCIA 5
Attalia
The Gulf
Andraeus
Seleucia 2
CIBYRRHAEOT
Constantia
Cyprus

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